献给一起创造梦想的人—Dedicated to those who made our dreams come true.

2000 -2020

魔比斯環20週年

20th Anniversary

THRU THE MŒBIUS STRIP


Making of
THRU THE MOEBIUS STRIP
感谢你们 Thanks to you all

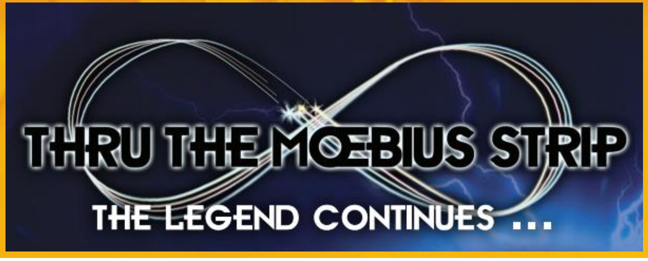
2000-2020 Happy 20th Anniversary 20周年

20年前，我们着手打造梦想和行业。 20年过去，我们完成了当初的目标。 我们作为一个团队而非一家公司，共同塑造、构建并领导了亚洲的数字媒体若产业的发展。

我很高兴20年后我们再次聚首一堂。让梦想永存。

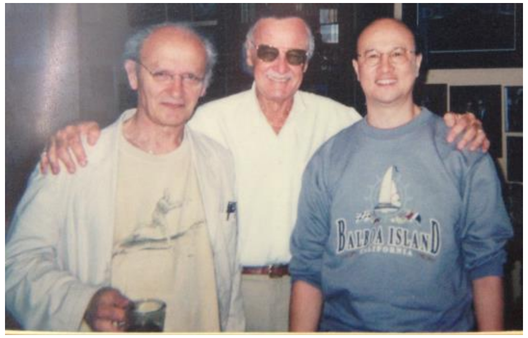
20 years ago, we set out to build a dream and an industry. 20 years now, we accomplished what we set out to do. Together as a team, not a company, we have shaped, built and lead the digital content industry in Asia.

I am happy that we have come back together one more time after 20 years. Let keep the dream alive.



2000-2020 Happy 20th Anniversary 20周年

2000-2020 Happy 20th Anniversary 20周年

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I·D·M·T
Institute of Digital Media Technology
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2000-2020 Happy 20th Anniversary 20周年


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THRU THE
MOEBIUS STRIP
26 7:34AM


任务和使命
MISSION STATEMENT


4 2:33PM


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20周年感言--

20年前，Jean Giraud Moebius通过概念图开始了“魔比斯環”的前期制作。全功能电脑产生图像的高清电影配合中英文对话本，于2004年完成制作，2006年在中国上映，这是中国有史以来第一部CGI全功能电影。从前期制作到后期制作，包括郁郁葱葱的交响乐和合唱音乐的制作，作为密切参与电影制作的制作人之一，这是我一生的骄傲。“魔比斯环”不仅仅是一部故事片，更是我的弟弟Raymond构想的愿景核心，为我们的国家建立产业。电影开始制作时，中国只有屈指可数的CGI艺术家，没有人知道如何制作一套完整的CGI电影。所以，这是一项巨大，并且集合艺术，技术和组织要素的挑战。我们在美国加利福尼亚进行前期制作的同时，亦在深圳成立了一所培训数百名CGI艺术家的培训学校。第一批学生毕业时，学校附属的工作室已开始聘请他们制作电影。21世纪初期的计算机科技比现时的技术低几陪级别。为令电影能够讲述引人入胜的故事，所有参与的CGI艺术家必须得到一套完整的制作系统的支持，而这个系统是从头开始创建的。完成此操作后，该系统可以制作模型，并将其动画化为逼真的动作、创建集合、操控相机角度、制作合适的灯光效果，并配合对话、声音效果和音乐，将所有部分合成到成千上万个单独的框架中。事实证明了市场上可购的计算机软件需要这项工作，因此，只要完成多项内部软件开发工作，才能完成一套完整的电影。毕业于培训学校的艺术家，以及参与制作的CGI科学家和技术人员有独一无二的机会，在CGI历史上具挑战性的项目之一中历练，犹如一场大火的洗礼。他们是中国第一批CGI艺术家、科学家和技术人员。从“魔比斯环“的制作获得的经验中，他们继续做伟大的工作，建立了今天的中国CGI行业。

光辉岁月

Mr. Anthony F. Neoh 梁定邦

中国香港

《魔比斯环》主席

20 years ago, preproduction work began on “Thru the Moebius Strip” with conceptual drawings by Jean Giraud Moebius. The full feature computer generated imagery in HD movie was completed in 2004 with both English and Chinese dialogue and was cinematically released in China in 2006. This was the first ever CGI full feature length movie produced in China. As one of the producers closely involved in the production of the movie, from preproduction to post production including the production of the lush symphonic and choral music, this was one of the proud achievements of my life. But “Thru the Moebius Strip” is much more than a feature film. It is the centerpiece of a vision conceived by Raymond, my youngest brother, to build an industry for our country.

When work started on the movie, there were only a handful of CGI artists in China. No one knew how to make a full feature length CGI movie. It was a monumental artistic, technical and organizational challenge. While the preproduction proceeded in California, USA, a school for training CGI artists was started in Shenzhen to train the hundreds of artists who would be needed to make the movie. When the first batch graduated, a studio annexed to the school was started to employ them for making the movie. Computer technology in the early years of the 21st Century was many orders of magnitude below the capability of the present. To make a movie that tells a compelling story, the CGI artists involved had to be supported by a complete production system that had to be created from scratch. When this was completed, this system could produce models and animate them to lifelike movements, create sets, manipulate camera angles, produce appropriate lighting, and compositing all of that into many thousands of individual frames to be stored for synchronization with dialogue, sound effects and music. The computer software available in the market proved wanting for the task, and much in-house software development had to be undertaken to complete the movie.

The artists who graduated from the training school and the CGI scientists and technicians involved in the production had the unique opportunity of cutting their teeth in one of the most challenging projects in CGI history. It was a baptism by fire. They were the first major cohort of CGI artists and CGI scientists and technicians in China. From the experience gained through the making of Thru the Moebius Strip, they went on to do great things, and built the CGI industry of China today.

Tony Neoh

20th Anniversary

Making of
THRU THE MOEBIUS STRIP

20周年感言--

《魔比斯环》承载着数字技术的创新精神,
蒙以养正培育行业, 一切都是美好的印记。
时光流转, 仍心向阳光, 一种永不停歇的追求。
因为这种创造方能梦想犹在。
有你们才有20年后今日的我们！

光辉岁月

Mr. Raymond D. Neoh 梁定雄

中国香港

《魔比斯环》总制片

个人简介：

2000年建立中国首家CG学院IDMT,培养专业人才;
2006年耗资1.3亿, 汇集400余名动画精英精心打造中国首部拥有自主知识产权《魔比斯环》三维动画电影。

20th Anniversary

Making of

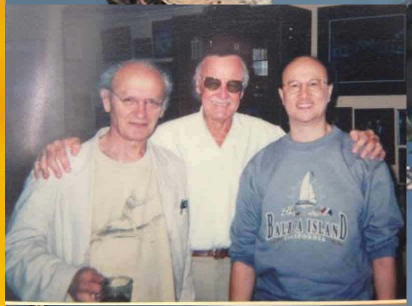
THRU THE MOEBIUS STRIP

20周年感言--

"Thru The Moebius Strip" is dedicate to Moebius and it is the only movie that bear his name. We, forever grateful to him to help jump started the CG animation industry in China.

Ray Neoh

光辉岁月



Jean Giraud "Moebius"

法国

《魔比斯环》动画主管

个人简介：

《魔比斯环》献给了魔比斯，这是唯一一部以他的名字命名的电影。 我们永远感谢他帮助中国启动CG动漫产业。
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20th Anniversary

Making of

THRU THE MOEBIUS STRIP

20周年感言--Thoughts

Jean “Moebius” Giraud and I hatched a plan in 1982 to make an animated feature film after we met working together on “Tron”. It was to be called “Internal Transfer”, and we pitched our story presentation to Disney, but the new regime didn’t know who Moebius was nor understood his esoteric metaphysical content. It was too far ahead of its time. So, it sat on the shelf for another 15 years until I met Raymond in 1997. His business card read “Evangelist”; I knew he had the vision to bring Moebius’ art to the silver screen. Ray and his brother Tony Neoh put together an amazing business package, which included financing the feature film and the construction of the first digital animation studio, spearheading the future of computer digital imagery in China.

Once we established the new story idea which was now called “Thru The Moebius Strip”, my role was to set up the pre-production facility in Los Angeles. Jean “Moebius” served as concept designer and art director. I organized the storyboard dept. and supervised the storyboards and props that would set the tone for our animation team in Hong Kong, who would later relocate to Shenzhen, China, where the production studio was being built.

It was crucial that Jean had his eyes and hands on all the pre-production art needed to jumpstart the China production team. It was my job to keep Jean on track and on time, and make sure the pre-production team completed all the work needed.

Having a Moebius movie made by hundreds of inspired young artists, who traveled from the U.S., Hong Kong, and across the vast country of China to work on this project, was a brilliant plan on Ray’s part. Jean and I felt lucky and fortunate to be a part of history in the making: A Moebius animated film produced in China which contributed to the future of digital arts technology that has encompassed not only China, but the world.

光辉岁月

魔比斯和我在 1982 年计划在继“Tron”的合作后制作一部动画長片 。它被称为"内部转移"（“Internal Transfer”） ，我们向迪士尼推销我们的故事，但新政权不知道谁是魔比斯，亦不明白其深奧而抽象的内容。由於它在当时太超前了，所以15年期间没人问津，直到我在1997年遇见Raymond。他的名片上写着"传道人"，我知道他有能力和远见，把魔比斯的艺术搬上大银幕。Raymond和他的哥哥 Tony提出了一个令人惊叹的商业计划，其中包括为动画長片融资和建设第一个数字动画工作室，引领中国计算机数字图像的未来.

当我们订立了新的故事大纲（现称为"魔比斯环"），我的角色是在洛杉矶建立前期制作设施，魔比斯担任概念设计师和艺术总监。我负责组织故事板部门，并监督故事板和道具，这些故事板和道具为我们在香港的动画团队定下基调，他们后来迁往深圳建设制作工作室。

关键是魔比斯有所有前期制作艺术需要的眼光和画工，以启动在中国的制作团队。我的工作是让魔比斯按时保持进度，并确保前期制作团队完成所需的工作。

拥有一部由数百名来自美国、香港和整个中国、受启发的年轻艺术家制作的魔比斯电影，是Raymond的一个精彩计划。魔比斯和我感到幸运，能够成为动画制作历史的一部分：一部在中国制作的魔比斯动画长片，它不但为中国，更为世界数字艺术科技的未来做出了贡献。

Arne Wong

美国,夏威夷

Co-producer 联合制作人

20th Anniversary

Making of

THRU THE MOEBIUS STRIP

20周年感言--Thoughts

“Thru the Moebius Strip was an incredible journey for me as the Director of this very special CG film. I remember how one of the Executive Producers, David Kirschner, had first told me about it. Then I met with Ray Neoh who originally brought the project into his studio located in Shenzhen, China. When I first heard about it I felt this has to be done. From what Tony, Ray and David were telling me. How grand and epic the visuals would be along with the story based on what Jean “Moebius” Giraud had created. To be able to take the audience on this incredible thrill ride. What also made it special was how it is considered to be the first CG film made in China. What an honor. For us all. I was blessed too with an incredible team of talented artists who worked tirelessly at the studio to bring this special film to life”.

光辉岁月

Glenn Chaika

Director

《魔比斯环》 导演

个人简介：

中咨律师事务所律师

“作为这部非常特别的 CG 电影的导演，《魔比斯环》于我而言是一段不可思议的旅程。我记得执行制片人之一的David Kirschner大卫·基什内尔最初告诉我这项制作。然后，我会见了最初把这个项目带到位于中国深圳工作室的Ray Neoh。当我第一次听这个制作项目时，我觉得必须这么做。Tony, Ray和David告诉我，如何基于魔比斯创造的故事，创作带来宏大和史诗般视觉的故事，能够带给观众这个令人难以置信的刺激之旅。令其更特别的是，它是中国第一部CG电影。多么荣幸。对我们所有人来说。我亦有幸拥有一支不可思议的天才艺术家团队，他们不知疲倦地在工作室工作，使这部特别的电影得以面世。

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Making of

THRU THE MOEBIUS STRIP

20周年感言--

二十年前, 梁定邦和梁定雄先生, 梁氏兄弟。 在2000年, 兄弟俩为制作其首批数字电影《穿魔比斯環》打下了基础,并由此建立并发展了由梁氏兄弟创立的“IDMT”, 成为亚洲数字内容的领导者。

这是一项艰巨的任务。从零开始, 在深圳成立了培训学校, 汇聚了来自中国不同省份的潜在图形艺术家和工程师, 这不仅是电影制作所必需的, 更重要的是将“计算机图形”建设为一个行业, 以促进科学发展·生活质量要好得多。

我于2001年应聘加入该家族, 担任该团队的管理职务, 该团队拥有600多名不同级别和专业知识的员工。不仅兄弟俩将梦想变为现实, 但他们的奉献精神给我留下了深刻的印象, 但令我印象深刻的是, 学生和工作人员的决心和激情使影片的制作成功。这部电影的制作和上映都没有浪费任何时间和精力, 并且在工作人员的不懈努力和奉献精神的帮助下, 影片的制作和制作都在梁氏兄弟的严格监督下完成。当今数字内容行业的不断发展证明了梁氏兄弟的远。有了决心, 一切皆有可能, 这是我从 梁氏兄弟那里获得的生活指南。毫无疑问, 梁氏兄弟该行业的经验和领导才能会回响20年前的事情。是的, 再做一次-一次还不够。

光辉岁月

Amelia Mak Lai Yu 麥麗如

中国香港

《魔比斯环》公司秘書

Twenty years ago Anthony and Raymond Neoh ‘the Neoh’s brother’ started to put their dreams into reality. In 2000 the brothers lay the foundation for the production of its pioneer digital film ‘Thru The Moebius Strip’ and through which to set up and develop ‘Institute Of Digital Media Technology’ founded by the Neoh’s brother as the leader in digital content in Asia.

It was a mammoth task. From scratch a training school was set up in Shenzhen to bring together potential graphic artists and engineers from different provinces of China, necessary not only for production of the film but more importantly to build “computer graphic” into an industry to promote scientific development in bringing about a much better quality of living.

I was recruited to join the family in 2001 to take managerial role of the group which has a staff size of over 600 of different levels and expertise. I was impressed by the devotion not only in the brothers in walking their dream into reality but what struck me was the determination and passions of the students and crew into bringing the production of the film to success. No time and efforts were wasted over the production and with the unfailing hard work and dedication of the crew and under stringent supervisions of the Neoh’s brother the film was completed and launched in. The progressive development of digital content industry today proves the Neoh’s brother foresight and vision. With determination nothing is impossible-a guide in life I earned from the Neoh’s brothers. What happened 20 years ago will no doubt be echoed through the Neoh’s brother experience and leadership in the industry. Yes do it again one more time - once is just not enough.

20th Anniversary

Making of

THRU THE MOEBIUS STRIP


20周年感言--
20年前，一帮懵里懵懂的伙伴，为了同一个梦想走到一起来了，于是成就了今天……
光辉岁月


詹敏
中国北京
《魔比斯环》律师
个人简介：
中咨律师事务所律师
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--

恩·肯尼迪的想法
为了追求伟大的事物, 必须先开始一段旅程。九十年代后期, 中国体验了由皮克斯（Pixar）在1995年率先制作的CG动画电影先进的技术, 整个世界都惊叹不已, 这个新兴产业触发了年轻人和企業家的梦想。
”魔比斯环”为当时经验和技术落后多年的国家奠定了CG动画产业的发展基础。从著名艺术家魔比斯（Jean Giraud）的创意出发, 再加上梁氏兄弟的热情和毅力, 一个新兴的行业便诞生了。梁氏兄弟的态度是除非落水否则不会学会游泳。
我和電影特效、动画行业的专业人士一起踏上了这一伟大历程, 与来自中国和世界各地的年轻人和艺术家制作了中国首部CG电影。 从这些卑微的开始, 催生了一个备受全世界关注的产业。

光辉岁月

Wayne Kennedy

美国

《魔比斯环》动画主管

To aspire for something great you must first begin the journey. In the late nineties, China had watched the virtuoso advancement of fully computer-animated movies, spearheaded by Pixar in 1995.

The whole world marveled, and possibilities of a new industry inspired the minds of both the young and the enterprising. “Thru The Mobius Strip” was truly an instrumental foundation building endeavor for a country that at that time, was years behind in experience and technology. From the creative mind of the renowned artist Jean Giraud, and the passion and perseverance of brothers Raymond and Anthony Neoh, an industry was born, with the attitude that you cannot learn how to swim unless you get wet. I, and other industry professionals from visual effects and animation, embarked on this grand adventure, working alongside young and dedicated artists from all over China to produce the country's first ever CG movie. From these humble beginnings spawned an industry and the world is taking notice.

Wayne Kennedy has cultivated and forged a wide-spanning slate of credits and expertise through his various experiences working in film, visual effects, animation and games. He led the model assets department and spearheaded the pre-production direction of the Moebius film..

20th Anniversary

Making of

THRU THE MOEBIUS STRIP

20周年感言--

Kelvin passed away a few years ago.
But his memory is always stay in our heart.
Kelvin 几年前去世了。 但他的记忆永远留在我们心中。

Ray Neoh

光辉岁月

Kelvin Lee 李世民

中国

《魔比斯环》 动画主管

个人简介：

A native son of Hong Kong, and an established Animator on many Hollywood blockbusters, Kelvin Lee (Lee Sai Man) was a pioneer who embraced the challenge of Animation Director for China's first CG animated movie. He led by example, and embodied the brilliance of Moebius' vision.

20th Anniversary

Making of

THRU THE MOEBIUS STRIP

20周年感言--

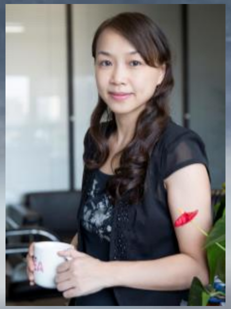
这是一部史诗般的电影，同样也是中国CG电影的历史，一群行业的拓荒者彼此支撑经历风雨，留下一部空前之作，每个人微小的付出聚沙成塔，都是历史不可抹灭的光环。从创立者的高瞻远瞩，到一拔拔前赴后继的年轻人，让《魔比斯环》傲然屹立，它带来了一个行业的兴起，一个产业的诞生，一群有理想的人的聚集，即便是离开也深深地留下了烙印和爱拼的顽强。大家的参与为这个行业留下了丰富的土壤，滋养出百花齐放 百家争鸣的新CG时代！感恩每一位一起陪伴走过的人！

光辉岁月

曹辉

中国深圳

《魔比斯环》 副制作总监



个人简介：

从环球数码成立，20年来经历了《魔比斯环》从前期创作，生产制作、后期录制以及宣传发行的全过程，从制作始发，从事生产管理以及公司管理，沉甸几代人的心血与付出。

20th Anniversary

Making of

THRU THE MOEBIUS STRIP

20周年感言--

作为中国CG行业的基石，《魔比斯环》和IDMT都当之无愧

光辉岁月

Ellen Ling Xu 许翎

中国深圳

《魔比斯环》Studio Manager

个人简介：

2002年加入深圳IDMT, 参與公司管理和三维动画电影、电視制作管理，市场营销。
現创业，致力于开发和运营中国传统文化IP。

20th Anniversary

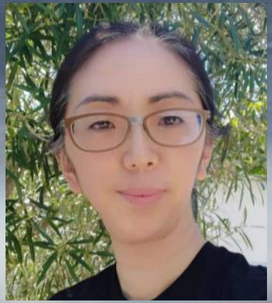
Making of

THRU THE MOEBIUS STRIP

Sophia Zhu 朱嘉华

中国上海

《魔比斯环》制片人助理



个人简介：

2001年加入中国首家CG学院IDMT, 參與三维动画电影、电视制作。
现任司知文化传媒（上海）有限公司客户总监。

20周年感言--

最让人记忆深刻的青葱岁月！
最让人敬畏的奋斗精神！
最让人难忘的同事情谊！
《魔比斯环》修建了中国CG电影制作的康庄大道。

光辉岁月

20^{th} Anniversary

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THRU THE MOEBIUS STRIP

20周年感言--

20年前, Thru the Moebius Strip 出自於一位法國著名漫畫家 Jean Giraud (Moebius) 手筆, 是中國歷史上第一部全CG動畫電影, 這也是我們中國大陸文化產業零的突破, 打造出新的里程碑, 真是我們身為中國人的一份光榮及驕傲, 畢生難忘。這套電影在2005年5月在第58屆康城電影節上試映, 也獲得第25屆金雞百花獎的最佳美術片提名, 於2006年8月4日更在全中國大銀幕上映, 簡直是圓滿。在此真的要衷心多謝梁定邦先生及梁定雄先生創造 IDMT 、 GDC 及 GDC Tech , 在全國招生及培訓CG人才, 培訓後再聘用我們的畢業生, 創造一班人才, 帶領一班年青進入CG文化產業的世界。我最榮幸就是能夠和一班有熱誠的年青人一同追尋夢想, 大家有如兄弟姊妹一樣互相扶持, 感激你們每一位陪伴我一同成長。 珍惜共同渡過的每1分每1秒, 我愛你們 ♡ 祝願大家前程錦繡, 身體健康。

光辉岁月

Tammy 楊穎汶

中国香港

《魔比斯环》 市場產品特許經營權主管

个人简介：

開拓市場, 產品設計, 參加外地電影展。


20周年感言--
20年前，踏出校门，挥洒青春，全心投入《魔比斯环》— 中国三维CG动画电影奠基之作。 20年后，继往开来，继续中国原创动漫IP开发运营探索之路。 在此与所有一起为《魔比斯环》辛勤付出的环球数码老同事一起共勉，不忘初心！
光辉岁月
吴泓琏
中国成都
《魔比斯环》 场景道具部门监督
个人简介：
四川弘耀文化传播有限公司CEO;
四川省文化和旅游创意产业联盟·动漫专委会主任;
成都大学·美术与影视学院硕士研究生导师。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--

这个团队和项目对中国动画行业的意义太大了。我个人什么都没有贡献过。

十五年前还只是和IDMT合作培训,真的特别感谢Raymond 能带我入行。

光辉岁月

姜辉

友梦影业总裁

个人简介：

资深动画行业从业者，2005年联合创立高路动画,2010年创立星乐影业, 期间制片、引进、发行二十多部动画电影, 2016年创立友梦影业。

20th Anniversary

Making of

THRU THE MOEBIUS STRIP

20周年感言--

在环球数码的日子，一直是我的青春中最值得纪念的一段时光。它其实，也是中国国产三维动画，甚至是整个动画历史中，相当值得纪念的时光。
曾经，在深圳大学旁的那栋小白楼里，上千名对动画抱有梦想的年轻人，因为《魔比斯环》这个项目聚到一起。他们带笑带泪地挥霍着每一朝阳光和每一夕夜色，奋斗出这部在外人看来“票房赔到底儿掉”，但却对国产动画电影有着非凡意义，并为未来整个中国CG动画产业贡献了人才，奠定了基础的作品。
我在环球的时间不长，也就是3年多，但那却是我动漫职业生涯的27年中，待过的最温暖的公司。因为它初创，纯粹，热情，居然还幽默。从Anthony · Raymond到各位总监，组长，每一位同事和学员，都真挚而单纯。我也清楚记得二维部小伙伴每一位的笑容，当年的那些小故事，和痛并快乐着的每个加班的夜晚。（也许将来我会把它们画成漫画吧？哈哈）
当年的你们，在笑过，泪过后渐渐散开，被播撒到每一方家乡的土地中……多少年以后，我的观影乐趣之一，就是在无数的CG动画创作名单中，找到你们的名字……而在未来，我相信我还将在无数伟大的作品中，再度看到你们。
爱你们大家，感谢我的青春有你们。
感谢我们曾共同拥有IDMT。

光辉岁月

颜开

中国北京

《魔比斯环》 故事板部门主管

个人简介：
漫画家,北京漫言星空&颜开文化创始人。
1994年出道, 国漫原创第一人。创作漫画作品《雪椰》。
2000-2004年服务于环球数码, 任职故事板部门主管。
06年成立“三剑客工作室”, 后成立个人公司“颜开文化”, 15年接受光线投资成立“漫言星空”, 率领团队持续创作中。
主要作品：《星海镖师》《神精榜》《龙族1》《机动战士高达UC（中国版）》《大唐飞行志》《大唐无双》《王妃13岁》等等

20th Anniversary

Making of
THRU THE MOEBIUS STRIP

20周年感言--

在这里开启了自己的CG生涯, 非常感恩。

光辉岁月

周迅

中国北京

《魔比斯环》 动画小组长

个人简介：

大千阳光动画导演。

20th Anniversary

Making of

THRU THE MOEBIUS STRIP


20周年感言--
魔比斯环代表艺术梦想和科技追求！
光辉岁月


肖勇
中国深圳
《魔比斯环》角色动画师
副制作总监
个人简介：
深圳环球数码总经理。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--

感谢梁定邦先生和梁定雄先生！环球数码的兄弟姐妹，手足情深！

光辉岁月

陈明

中国北京

《魔比斯环》 艺术导演

个人简介：

中国传媒大学动画与数字艺术学院教师、编剧、导演。担任第16届广州亚运会体育展示音视频内容和现场表演总导演，上海世博会《清明上河图》和伦敦奥运会开幕式音视频内容创意总监。深圳环球数码影视公司创意总监、北京水晶石数字科技副总裁和万达文化旅游规划院艺术总监。

20th Anniversary

Making of

THRU THE MOEBIUS STRIP


20周年感言--
二十年前CG行业从无到有的技术、人才，前途艰难能继续走过二十年是凭着一份执念之心，《魔比斯环》引领CG行业。
光辉岁月
黄秀明
中国深圳
《魔比斯环》 财务
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--

动画片不只是说故事，更多的社会责任是推广美学认知。由于动画载体的受众大量在青少年群体之中，所以动画艺术在观众的美学认知形成阶段会造成巨大影响。所谓文化强国，其实也是思想素质强国。把握住这一脉络，推广动画文化的事才能事半功倍。征途漫漫，二十年的坦途逐渐总结出一条国产动画创作经验：传统的东西不时髦就流传不出去，时髦的东西不传统就沉淀不下来。做能沉淀又能流传的动画，将是新一代动画人面临的新课题。

光辉岁月

李彬杰

中国深圳

《魔比斯环》特效师

个人简介：

动画导演，漫画监制。

20周年感言--

时间如白驹过隙，再回首时，当初那群聚集在未名湖畔的青年们已然散落各地，向上生长，在过去的二十年里为中国的CG行业发挥力量。《魔比斯环》是一个行业工业化的起点，更是串起IDMT人一根纽带，无论何时重聚时，凭添几分亲切。

光辉岁月


20周年感言--
最难得的是还有一份热情在坚持，感谢带路人--Raymond。
光辉岁月
梁跃红
中国深圳
《魔比斯环》 数据库技术员
个人简介：
原IDMT数据库技术员，
现黑屋文化制片总监。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
最好的年华、最大的热情都在那里了。
光辉岁月
郭华
中国深圳
《魔比斯环》剪辑主管
个人简介：
IDMT第一期培训后, 接着工作9年；后来去了GDC - tech等其他公司工作。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--

有幸入行就参与了国内第一部三维动画大电影，并一直坚持动画行业至今，算是见证并参与了中国动画行业的发展，虽然本片在商业上并不成功，但奠定了中国三维动画行业的基础，现今各大动画电影也都能看到当初IDMT团队的身影，印证了环球数码的组织使命：“我们是当今科技及产业的开拓者。征途漫漫，困难重重，我们将披荆斩棘，勇往直前。我们深信，人才的培养和今日的努力，就是我们的未来。……”

光辉岁月

吴成五

中国南昌

《魔比斯环》 材质灯光师

个人简介：

江西情景科技有限公司创始人、总经理。

20th Anniversary

Making of
THRU THE MOEBIUS STRIP

20周年感言--

謝謝何立強
跟我們設計這個封面
很多魔比斯環場景都是出自他的手筆

Ray Neoh

光辉岁月

何立強

西安美術學院

《魔比斯环》 前期製作

20th Anniversary

Making of
THRU THE MOEBIUS STRIP

20周年感言--

感谢IDMT，感谢《摩比斯环》让我认识很多志同道合的朋友！！
《摩比斯环》是中国cg界浓墨重彩的一笔。项目培养出大量的专业人才！IDMT 是中国cg界的黄埔军校一点不为过！

光辉岁月

陈成就

中国上海

《魔比斯环》灯光材质师

个人简介：

IDMT三期3班的学员。

20^{th} Anniversary

Making of

THRU THE MOEBIUS STRIP

20周年感言--

从历经艰辛的创作制作到上映虽然已过去许多年，但看到魔比斯环20周年纪念海报的一刹那，却依然激动不已，作为本部培训三期留到制作部的学员和学长们一起摸爬滚打并肩作战欢喜有忧，虽然没有看到相应的商业回报，但却开创了中国三维动画史上多方面新的里程，悲壮中有些许宽慰。曾今看到一则评论感慨由然：“魔比斯环生不逢时，没有赶上中国电影的好时候，在如今电影市场这么好的情况下是个烂片也能混上几亿票房的时代，只能怪出品太早，” 谁说不是呢？无论怎样，以往鉴来，莫道沧桑晚，为霞尚满天！真希望有机会能再和参与过魔比斯环的兄弟姐妹们集结一起挥起鼠标开启新征程，画写新篇章！

光辉岁月

杨健

中国深圳

《魔比斯环》 材质灯光师

个人简介：

动画行业从业十六载，苦辣酸甜各滋味，不忘初心，我心依旧，虽逢不惑之年，还抱动画大电影之梦，仍有不死之心。依然在同事眼里戏称的被动画耽误的男高音，乘着技术和艺术的翅膀在歌声中挣扎着飞翔。

20th Anniversary

Making of

THRU THE MOEBIUS STRIP

20周年感言--

电影魔比斯环就像自己的宝宝一样，从脚本到测试，到制作，到最终的上映，和公司里的同事就像兄弟姐妹，一起经历了很多风风雨雨，克服了很多困难，也让我们一起成长起来。

光辉岁月

谭美德

中国深圳

《魔比斯环》 材质灯光师

个人简介：

2000加入环球数码公司。

20周年感言--
《魔比斯环》是中国动画电影开创之作,
拉开了中国CG行业的序幕，承载了最好
梦想与执着，20年犹如昨天，不忘初心，
祝愿伙伴们身体安康，前程似锦！
光辉岁月

孟婧忞
中国北京
《魔比斯环》培训部导师
制作部Rigging
www.moebiusstrip.net
个人简介：
好未来产品视觉设计制作负责人。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--

20年，一代的时间。我们见证并参与了中国数字动画成长，环球数码的基因已写入中国动画的基因里，并一直传下去。

光辉岁月

王怿奇

中国上海

《魔比斯环》 合成师

个人简介：

上海福煦影视文化投资公司，后期总监。

20th Anniversary

Making of

THRU THE MOEBIUS STRIP


20周年感言--
时光如梭, 少年不再；
初心不改, 童心未泯；
业于其中, 存于其成；
个中苦乐, 同体同情；
一日三餐, 缘自于技；
感恩先生, 创立平台；
入行于始, 成长二十年！
光辉岁月


梁朗培
中国深圳
《魔比斯环》 绑定师
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--
环球数码对于我而言是感恩的, 在这里认识
全国乃至全球做电影动画的一群好朋友！
拥有着非常深刻的工作经历影响至今。
光辉岁月
骆俊
中国深圳
《魔比斯环》3D场景组组长
个人简介：
环球数码第二期学员, 在环球工作四年。
2004年成立深圳市固有色数码技术有限
公司至今。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

庄伟珍
中国贵阳
《魔比斯环》 财务总监
www.moebiusstrip.net
20周年感言--
2005年入职环球数码，亲身经历魔比斯环首映前前后后。庆幸自己的青春参与过环球数码的岁月！祝福GDC，祝IDMT20周年生日快乐！
光辉岁月
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--
很高兴参与这个 Moebius Project,
有幸遇到 Jean Moebius。
光辉岁月
阮文輝
中国香港
《魔比斯环》 动画部主管
个人简介：
丛书动画制作超過18年,
現在从事电影后期制作。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
“生命中所有灿烂,终将用寂寞来偿还”——《百年孤独》。
光辉岁月


吕勇
中国深圳
《魔比斯环》 合作伙伴
个人简介：
原深圳大学文化科技服务公司总经理。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--

經歷了多個魔比斯環前期工作的籌組及創作的會議。回首由梁先生提出這個電影概念那一刻到現在，原來已經20個寒暑。在這個過程間經歷的一切一切，認識了一個個的朋友。當中有不少是美國的專業製作人，還有不少今天已成為行業中翹楚的朋友。現在想來百感交集。畢竟沒有魔比斯環，就沒有後來的中國三維動畫。而且IDMT也成了中國動畫的一個搖籃。所有一切都要多謝兩位梁先生（梁定邦先生和梁定雄先生），努力不懈地把不可能變成可能。是他們及IDMT 所有人的努力，令中國動畫走上能與西方一較高下的舞台。

光辉岁月

何錫蔭

中国东莞

个人简介：

IDMT 尚在醞釀階段已經存在的一個人物。

20周年感言--

《魔比斯环》是青春期追寻理想的过程，虽然每次网络搜索相关，都因为资料不多和评论相关有点遗憾，但无碍在自己所见证的历程和价值。 20周年之际，当年同学同事，都有所成长，环球数码历经多年亦取得优秀成绩，希望GDC能有更多让大家共聚和了解彼此的活动，例如直播分享、参观公司、联谊等线上线下活动，让大家增进情谊，促进发展！祝老公司和同学同事们越來越好。

光辉岁月

梁晓智

中国东莞

《魔比斯环》 AIA 流程监控制作管理

个人简介：

现在是脱口秀表演者、喜剧编剧，动漫策划人。

20th Anniversary

Making of

THRU THE MOEBIUS STRIP

20周年感言--

回首20年非常庆幸20年前的选择，IDMT给了我不可或缺的行业经验，打开了我的国际化视野。同时在IDMT认识了很多志同道合的朋友，获得技术与经验的同时，也收获了友谊。在IDMT的经历为我日后的发展不仅提供了很多极具价值的专业技术储备还沉淀了大量管理经验。

光辉岁月

郭云钟

中国北京

《魔比斯环》R&D

个人简介：

2002年在IDMT 的R&D部门任职，在KC的领导下开发灯光插件，那是我第一次参与动画电影的制作，非常开心的一段时光。

目前是美国VES视觉效果工会成员，在北京从事电影制片人、视觉效果制片人等职务，继续在电影行业发展。

20th Anniversary


20周年感言--
匆匆那些年！
光辉岁月
李锐
中国深圳
《魔比斯环》技术部
渲染组
深圳数虎图像股份有限公司
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--

2002年参加IDMT第三期培训，2003年留公司绑定部门工作，期间也曾借调参与《魔比斯环》群体动画以及场景模型的搭建。在公司的学习和生产实践磨炼，奠定了这么多年在CG行业摸爬滚打的硬功，内功，受益终生！非常感谢IDMT曾给了我们那么有热情和活力的平台，青春无悔，因为有你——我们永远的环球数码！

光辉岁月

千满胜

中国上海

《魔比斯环》绑定师

个人简介：

1976年生，祖籍河南焦作，现居上海。
20年CG行业经验，资深动画导演，监制。熟悉影视动画制作流程，参与过众多动画项目的策划，制作和管理工作。传统艺术师从篆刻书画大家韩天衡先生。

20th Anniversary

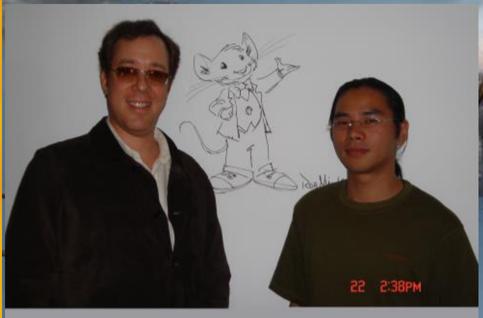
Making of THRU THE MOEBIUS STRIP


20周年感言--
有你们才有20年后今日的我们！
光辉岁月
Wing Tam 譚詠旋
中国香港
《魔比斯环》制片
个人简介：
2004年加入中国首家CG学院IDMT, 參與三维动画电影、电視制作。
現職國際4A广告公司監製。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--

环球数码（IDMT）是中国CG先驱的摇篮。
感谢这段闪光的岁月。期间的收获和经历，
让每一个亲历者受益终生！

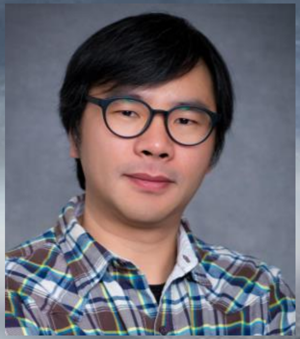
光辉岁月



Harry Liu 刘峰

中国北京

《魔比斯环》材质/灯光总监



个人简介：

1999年，中央美术学院，电脑美术工作室，教师。
2000-2005年，环球数码（IDMT），材质/灯光制作主管。
参與三维动画电影《魔比斯环》及电視制作。
2006年，深圳中视典数字科技有限公司，副总经理。
2007年-2016年，深圳数虎图像股份，联合创始人。
2017年-至今，北京聚城文化创意有限公司，创始人。

20th Anniversary

Making of
THRU THE MOEBIUS STRIP

20周年感言--

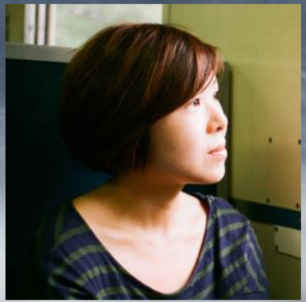
有你们才有20年后今日的我们！

光辉岁月

Janas Lau 劉佩佩

中国香港

《魔比斯环》制片助理



个人简介：

2003年加入中国首家CG学院IDMT, 參與三维动画电影、电視制作。
現職自由插畫師。

20th Anniversary

Making of THRU THE MOEBIUS STRIP


20周年感言--
站在未来说历史！
光辉岁月
盛龙
中国福州
《魔比斯环》 合成主管
兼任后期主管
个人简介：
关键时候执著, 关键时刻果断, 临危时受命！
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--

非常有幸参与中国首部三维动画电影魔比斯环的制作，当时的团队精神至今使我受益。

光辉岁月

沈娟

中国上海

《魔比斯环》 合成师
培训老师

个人简介：

CG行业的一名老人。

20th Anniversary

Making of
THRU THE MOEBIUS STRIP

20周年感言--

25-40岁的青春年华，梦想成真的奋斗20年，感谢GDC集团提供的个人成长平台，感恩Rayneoh,张博士对我的栽培，有幸成为中国第一批从事CG三维动画数字电影制作、发行、放映的全流程技术支持拓荒团队之一；有幸成为中国第一批数字化、信息化、网络化、智能化推动中国传统电影行业全面升级改造完成数字化，拥抱互联网变革的引领者之一，建设与见证了CGI三维动画和数字电影放映二个行业与产业在中国从0到辉煌的过程，鉴定了更大目标的基础，人生意义不过如此，让我们继续延展塑造数字文化科技产业的未来，继续拓展做国际文化科技数字内容.产品与服务的创新生态、产业生态、事业生态平台。

光辉岁月

李劲松

中国西安

《魔比斯环》技术支持

个人简介：

GDC集团工作15年，历经idmt\gdc-tech\cfgdc三个子公司深造,现在西安从事展览展示,文化旅游,特种影院业务，2018年回香港时和Rayneoh一起创办了"国际数字文化科技联盟",致力打造国际数字文化科技融合内容,产品与服务平台.


20周年感言--
朋友,家人,青春都在这部电影里，个人的成长都在电影的缩影中，家和工作二者兼得，感谢IDMT赋予我们的能力实现价值。
光辉岁月
吴芳
中国香港
《魔比斯环》灯光材质组
个人简介：
IDMT第一期学员，然后就在IDMT生产和培训部工作了17年，2018年回香港家，现香港保诚理财顾问
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
爱上动画的人永远不会老。
感谢《魔比斯环》给我一个这么好的机遇，让我这个CG小白接触并从事动画游戏行业数年。作为20年前IDMT的第一届毕业生，能参与制作《魔比斯环》很自豪！
光辉岁月
刘丽华
中国深圳
《魔比斯环》 模型师
动画师
个人简介：
2000年加入中国首家CG殿堂IDMT，全程参与中国首部3D动画电影《魔比斯环》制作。之后一直在动画、游戏行业任职 。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
很遗憾未能去电影院观影魔比斯环！
光辉岁月


成弢
中国广州
《魔比斯环》 AIA
个人简介：
执着的CG人。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
《魔比斯环》是中国CG动画电影的里程碑，是我进入文创产业的起点，感恩致敬当年的每一位老环球人！
光辉岁月
张宝珠
《魔比斯环》制片
中国深圳
个人简介：
深圳元来文化发展有限公司 CEO互联网IP孵化和投资人
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
未忘初心。
光辉岁月


郭磊
中国北京
《魔比斯环》材质组
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
感谢这个电影把我带进动画行业！
时隔20年, 仍历历在目！
光辉岁月


也是瓜
中国深圳
《魔比斯环》后期合成师
个人简介：
一个好人。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--

青春定格在这个城市、这个公司、 这个影片里！

光辉岁月

冯潜

中国上海

《魔比斯环》原画

个人简介：

目前在做游戏美术工作。


20周年感言--
青葱岁月，总是一段回忆！
光辉岁月
李宏
中国广州
《魔比斯环》渲染管理
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--

我把青春献给你, 无怨无悔。

光辉岁月

焦继红

中国本溪

《魔比斯环》项目助理

个人简介：

IDMT一期学员，入职后从事项目助理，直至2010年辞职。

20th Anniversary

Making of

THRU THE MOEBIUS STRIP


20周年感言--
朋友, 家人, 青春, 都在这部电影里, 个人的成长都在电影的缩影里。
光辉岁月


吴芳
中国香港
《魔比斯环》材质组
www.moebiusstrip.net
个人简介：
第1期的学员。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--

人生中宝贵的20年啊，愿环球人都越来越好。

光辉岁月

石雪梅

中国深圳

《魔比斯环》技术支持

个人简介：

IT女，20年不间断为大家的制作提供软硬件和网络支持。

20th Anniversary

Making of

THRU THE MOEBIUS STRIP


20周年感言--
人生第一部参与的电影，甚幸甚幸。
光辉岁月
万寿龙
中国深圳
《魔比斯环》 技术指导（TD）
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
满满的回忆！
光辉岁月


李宏
中国广东
《魔比斯环》网络渲染技术支持
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
愿余生是当年！
光辉岁月
王从信
中国上海
《魔比斯环》材质灯光部门
副leader
个人简介：
上海炫伍科技股份有限公司创始人、
董事长兼总经理，技术未脱线的管理人。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
20年, 弹指一挥间, 曾经的我们, 都还好吗？
光辉岁月


吴文辉
中国北京
《魔比斯环》流程控制和制作管理
个人简介：
入行18年, 仍然对动画好奇如初！
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
感恩IDMT伴随我人生的成长！
光辉岁月


吴芃
中国深圳
《魔比斯环》灯光组长
个人简介：
目前在参与开发3D编程教育产品。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--

环球数码, 动画先锋; 披荆斩棘, 终身难忘;
再接再厉, 再创辉煌！

光辉岁月

孙广洋

中国上海

《魔比斯环》后期合成师

个人简介：

上海极映影业有限公司创始人, CEO。

20th Anniversary

Making of
THRU THE MOEBIUS STRIP


20周年感言--
20年动画路无怨无悔！
光辉岁月


邹燚
中国北京
《魔比斯环》动画师
个人简介：
动画电影《豆福传》导演;
动画电影《镖师虎墩》出品人监制。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

于亚慧

中国深圳

《魔比斯环》毛发布料解算

个人简介：

动画从业接近20年，目前为项目制片。

20周年感言--

时光飞逝，转眼间参与的第一部动画电影《魔比斯环》已有20年，非常怀念和曾经的同事们一起为电影制作努力奋斗的那些日子！

光辉岁月

20th Anniversary

Making of

THRU THE MOEBIUS STRIP

20周年感言--

20年一晃而过, IDMT的一部电影培养了无数的中国CG精英, 也给我们的人生创造了无限机会！

光辉岁月

金龙

中国上海

《魔比斯环》角色模型师

个人简介：

2000年加入IDMT，01年开始有幸参与到Moebius项目的制作, 后又进入培训部, 培养了多届学生进入生产部, 在IDMT度过了人生最美好的5年光阴。

20th Anniversary

Making of

THRU THE MOEBIUS STRIP


20周年感言--
环球数码是我职业生涯的起点, 谢谢环球给我良好的基础和工作习惯！
光辉岁月
白杨
中国深圳
《魔比斯环》灯光材质
个人简介：
目前就职于腾讯Ai Lab。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
第一份毕业后干的比较长的工作！
光辉岁月


陈鸣东
柬埔寨
《魔比斯环》TD
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
有幸参与中国首部三维动画电影《魔比斯环》制作，继续努力前行！
光辉岁月
梁川
中国成都
《魔比斯环》 模型师
个人简介：
环球数码第一期学员，在环球数码工作10年，2012年加入四川弘耀文化传播有限公司。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
梦起航的地方！
光辉岁月


芦晓梅
中国深圳
《魔比斯环》特效师
个人简介：
我是健康生活的代言人！
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
梦的开始, 从此远航！
光辉岁月


蒋毅
中国上海
《魔比斯环》概念设计
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--
一晃二十年, 现在还在奋斗在电影的道路上。
目前在兰州拍摄一部自己投资的科幻电影！
加油！
光辉岁月
丁黎博
中国兰州
《魔比斯环》特效师
个人简介：
广州动觉奇想公司技术总监; 好莱坞外资数字制作公司制作总监;
水晶石影视传媒公司项目二部技术支持及制作部总监;
北京金海岸影业有限公司视效总监;未来新影集团副总裁;
北京未来新影传媒科技有限公司总经理。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
我的青春！
光辉岁月


韩冰
中国深圳
《魔比斯环》灯光渲染合成
个人简介：
目前开展原创项目，任公司副总经理、运营总监、技术总监。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
我的开始在这里！
光辉岁月
罗晓星
中国北京
《魔比斯环》灯光师
个人简介：
二十年动漫行业从业经验。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
人生开始工作的第一公司, 有幸参与了这部电影的材质和模型制作, 感慨青春不再, 一转眼就这么多年过去了！
光辉岁月
蔡沂华
中国上海
《魔比斯环》 材质模型师
个人简介：
喜欢尝试和感受不同的新鲜事物,
待人对事喜欢简简单单！
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
不知道说啥......！
光辉岁月


乔文斌
中国成都
《魔比斯环》 材质灯光师
www.moebiusstrip.net
个人简介：
2001年～2006年。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
因为有你，才有我对动画的了解和职业的生涯！
光辉岁月


刘浩东
中国深圳
《魔比斯环》 动画师
个人简介：
当过兵扛过枪，当过官干过总，
现在依旧曲线救国！
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--

最美好的五年青春留在了环球数码，献给了魔比斯环，成为了一生中最难忘的经历。祝福环球数码！

光辉岁月

阮宜扬

中国珠海

《魔比斯环》 二期教师
生产部动画组动画师

个人简介：

从环球数码开始与动画结下不解之缘，二十年过去了心中依然有个动画梦！

20th Anniversary

Making of
THRU THE MOEBIUS STRIP

20周年感言--
哈哈哈~那真是一段美好难忘的创作时光~
感谢IDMT！感谢这部电影！
光辉岁月
梁剑波
中国深圳
《魔比斯环》 故事板主创
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
人生中最美好的一段时光就是和伙伴们一起做魔比斯环的日子！
光辉岁月
刘晓清
中国成都
《魔比斯环》 合成组
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--

感谢魔比斯环, 打开了一个新世界！

光辉岁月

张剑锋

中国上海

《魔比斯环》 动画师

个人简介：

CG动画从业者。

20th Anniversary

Making of

THRU THE MOEBIUS STRIP


20周年感言--
感谢, 白驹过隙！
光辉岁月


马新宇
中国湛江
《魔比斯环》 模型师
www.moebiusstrip.net
个人简介：
环球数码模型师。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
2001年加入IDMT，经历了整个电影过程，认识了许多优秀的年轻人和死党，非常难忘的回忆。
光辉岁月
蔡婷
中国广州
《魔比斯环》 前期设计
中期导演助理
个人简介：
91年从事2D动画制作，十年后转型3D动画制作的环球数码。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
20年, 白驹过隙, 弹指一瞬间, 笃行致远,
砥砺前行!
光辉岁月
肖毅
中国桂林
《魔比斯环》 分镜师
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
怎么就嗞溜一下滑过了二十年？
光辉岁月
冯挽澜
中国北京
《魔比斯环》 流程管理
个人简介：
热爱动画的人。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
难忘的时光，在IDMT是我人生的第一份工作，
收获了爱人，朋友，感恩一切！
光辉岁月


苏伶俐
中国重庆
《魔比斯环》 材质灯光
www.moebiusstrip.net
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--
20年好快, 各位同事们都还好吗？！
光辉岁月
伍云峰
中国韶关
《魔比斯环》 二维部场景设计
个人简介：
怪蜀黍一枚。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--

那不是一部电影
那是一次战争!
二十年前开创中国CG动画电影的战争。
那不是一个公司
那是一个战队!
一个影响并引领中国电影特技发展的战队。
无论今天多么牛逼的公司
诞生了多么牛逼的数字电影
也离不了那一批奠基者
虽然,我已退伍
但人生永不退却的依然是那颗骄傲的心
骄傲的不是我们做了什么
而是那次为期创作六年的“战争”
我喜欢孤独
一个人可以在剪辑室做一星期
一个人可以在屋里“狂欢”几天
我有很多自己好玩的事情
我不寂寞
因为我还有那么多的老战友们挂念和骄傲。
这就是一个人一辈子
创业虽已落败,
只因江湖基因修炼不够
我不想再成为打工者
是因为不想把今生浪费在毫无意义的工作上。
我只寻找创造者的价值，能自由的天马行空发挥想象思维和实业生产制造, 为苍生造福。
目前还没想好做什么, 仍需继续修心~
人生就像做了一场美梦！

光辉岁月

傅欣勇

中国渭南

《魔比斯环》 编辑室编导剪辑师

个人简介：

少年追梦赤子心,
冷落长安话悲凉。

20周年感言--
20周年了……当年在电影院一直坐到最后看到自己的名字…现在带着一群学生，告诉他们，要热爱生活，只有热爱生活才能更好的描述生活，展现生活…… 。
光辉岁月
曹竞时
中国哈尔滨
《魔比斯环》 特效组
www.moebiusstrip.net
个人简介：
现在在高校带动画专业…；
怀念当时的老朋友们…… 。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
很高兴那么早能接触CG动画制作, 也很
高兴现在动画电影发展越来越好啦！
光辉岁月


贺敏
中国广州
《魔比斯环》 材质师
个人简介：
坚持了快二十年的多媒体
动漫内容设计和制作。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
梦想开始的地方，又承载另一个新的梦想！
光辉岁月


蒋常青
中国深圳
《魔比斯环》 动画师
个人简介：
曾经的动画师，动画培训师，
现在的户外培训师，户外健康管理专家。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--
二十年转眼已过, 在环球数码渡过的时光终身难忘！
光辉岁月

李鹏坤
中国重庆
《魔比斯环》 灯光材质组长
www.moebiusstrip.net
个人简介：
游戏行业从业人员。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--

学生时代以后最美好和难忘的一段青葱岁月，在那里认识了一辈子的朋友，遇到了一辈子的爱人，也有了一辈子坚持的事业！

光辉岁月

赵菁

中国南京

《魔比斯环》 场景模型

个人简介：

IDMT三期学员，为了一个做动画电影的梦想走进了环球大家庭！

20th Anniversary

20周年感言--

铁打的动画，流水的动画青年。

光辉岁月

张立琼

中国广东

《魔比斯环》 网站编辑

个人简介：

文案老王子，广告小机灵。


20周年感言--
有幸在20年前参与了《魔比斯环》的制作过程，感恩！
光辉岁月


黄文彦
中国珠海
《魔比斯环》 行政专员
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
我为参与过这部片子的制作感到荣幸和自豪。
光辉岁月
张春月
中国深圳
《魔比斯环》 制片
个人简介：
在CG行业中慢慢爬行，哈哈哈！
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--

感谢IDMT带我入行，感谢我的组长、主管和同事们对我的帮助，有你们我才有现在的事业。

光辉岁月

李惊宇

中国成都

《魔比斯环》 实习动画师

个人简介：

2003年去的深圳IDMT，后面回川后自己做了游戏外包公司到现在。

20th Anniversary

Making of

THRU THE MOEBIUS STRIP


20周年感言--
为中国3D第一部电影的制作尽一份绵薄之力而深感荣幸和骄傲！
光辉岁月
梁晓艳
中国深圳
《魔比斯环》 行政主管
个人简介：
2001年—2005左右有幸在环球数码任职, 积极参与了《魔比斯环》的后勤保障工作！
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
基佬们好久不见！有机会再相见吧。。
光辉岁月


吴梓桑
中国佛山
《魔比斯环》 灯光渲染合成
www.moebiusstrip.net
个人简介：
我制作了3D重制版哈。。。真是怀念。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--

感谢IDMT，是IDMT让我有机会进入CG圈子，
在IDMT遇到的人和事至今还历历在目，
IDMT在我的职业生涯中占有不可取代的位置。

光辉岁月

郑海滨

中国中山

《魔比斯环》 特效

个人简介：

IDMT第四期学员，毕业后进入特效组参与摩比斯环项目，后期调到R&D组，现任北京理工大学珠海大学珠海学院数字媒体技术专业教研室主任。

20th Anniversary

Making of

THRU THE MOEBIUS STRIP

20周年感言--
感谢环球数码, 感谢那段难忘的青春岁月。
想念当年一起奋斗的小伙伴们。
光辉岁月
Azon Zhou 周琛
中国上海
《魔比斯环》 动画主管
个人简介：
FLY导演监制工作坊：创始人
动画剧《三体》监制
动画剧《斗破苍穹》S2导演
动画剧《夜刑侠影》导演
VR电影《拳皇：命运》导演
动画电影《最终幻想：王者之剑》监制。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
多谢蘑菇林！
光辉岁月


失望牛肉丸
中国深圳
《魔比斯环》 材质组
www.moebiusstrip.net
个人简介：
在Jack一家重聚那个蘑菇林材质打酱油好久了。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
感谢IDMT, 感谢魔比斯环, 感谢那时都还年轻的小伙伴们！
光辉岁月
李明达
中国成都
《魔比斯环》 角色模型师
www.moebiusstrip.net
个人简介：
完美鲲鹏制片人。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--
没想到一晃就过了20年了，回想当年历历在目，真是感慨万千！
光辉岁月
陈直
中国海口
《魔比斯环》 TD组
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--

一晃20年过去了, 从踏入深圳环球数码IDMT大门那一步起, 让青春燃烧在中国三维动画行业里, 如今年过40, 回头来看曾今的那段经历, 依然是历历在目, 愿IDMT越来越好。

光辉岁月

吴东君

中国四川

《魔比斯环》 角色模型师

个人简介：

川美毕业, 喜欢3D动画, 喜欢摄影, 乐活轻创业, 专职宝爸, 持续收入倡导人。

20th Anniversary

Making of

THRU THE MOEBIUS STRIP


20周年感言--
魔比斯环让大多数参与者打下坚定的基石，
期待第二套、第三套的诞生。
光辉岁月
钟俊英
中国深圳
《魔比斯环》 AIA
个人简介：
你交托的任务，使命必达。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
好快！
光辉岁月


龙亚非
中国深圳
《魔比斯环》 动画
个人简介：
退伍兵。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
18年，最好的时光，文山湖餐厅的拉面到每天熬夜的桂庙。
光辉岁月
朱晨鑫
中国杭州
《魔比斯环》 培训部
个人简介：
动画组后转培训部，再励志做导演，考取中国美术学院，后留校做。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
岁月如梭, 感觉和一群同事们加班还发生在昨天一样。一转眼就过去了20年了。
光辉岁月
陈蕾
中国成都
《魔比斯环》 PA
个人简介：
二期学员。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--

我的青春我的梦。

光辉岁月

韩冰

中国深圳

《魔比斯环》 灯光合成

个人简介：

目前原创项目，公司副总经理，运营总监。

20^{th} Anniversary

Making of

THRU THE MOEBIUS STRIP


20周年感言--
环球数码对于我个人以及我事业路径的塑造、影响，意义非凡！
光辉岁月


冯尹华君
加拿大
《魔比斯环》 执行制片
个人简介：
从美国上完高中和学士后，环球数码是我的第一份工作。从做英文翻译到慢慢一步步成为执行制片，甚至后续陈征主席告知我成为环球数码创意最年轻股东，环球对我意义非凡。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
有幸曾为制作团队的一员，中国CG加油！
光辉岁月


张昊女
中国东莞
《魔比斯环》 角色建模师
个人简介：
平面设计师/角色建模师/房地产职业经理人，跨行业的体验者。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--

20年前, 参与电影制作的那些日日夜夜, 至今仍时常让我回想。怀念那时的我们, 怀念那段美好的时光。

光辉岁月

王科

中国大连

《魔比斯环》灯光师

20周年感言--
人生事业的起点, 20年后没有改变, 依然还在做动画电影。
光辉岁月
陈铭
中国北京
《魔比斯环》 材质灯光
个人简介：
任职十月文化制作总监。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--

日光如梭, 大伙还好吗？

光辉岁月

卢勇

中国广州

《魔比斯环》 培训部教师

个人简介：

普普通通。

20th Anniversary

Making of

THRU THE MOEBIUS STRIP


20周年感言--
一场雄心勃勃的实验，为中国CG产业的技术进步奠基。
光辉岁月


米晓林
中国深圳
《魔比斯环》 特效组长
个人简介：
这就不用了吧？
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
往事不堪回首, 历历在目, 砥砺前行。
光辉岁月
暗已不在
中国苏州
《魔比斯环》 实习解算师
个人简介：
二期学员。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--

一起讨论, 追着填表, 不断重复看镜头, 一起加班, 一起打机, 一起66, 一起玩耍, 就像昨天发生的事一样。感激自己的任性, 感激有你们一起的日子。

光辉岁月

陈绮云

中国深圳

《魔比斯环》 AIA

个人简介：

喜欢动漫如愿进入动漫的大小孩。

20th Anniversary

Making of

THRU THE MOEBIUS STRIP


20周年感言--
难忘那些年。
光辉岁月


陶凯
中国深圳
《魔比斯环》 剪辑
www.moebiusstrip.net
个人简介：
老同事一枚。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--

多年来一直坚持CG梦想，尤其为自己是环球数码的一员感到骄傲！

光辉岁月

何菲

中国上海

《魔比斯环》 培训部讲师

个人简介：

2002年担任环球数码培训部（深圳）技术讲师，2009年于上海文广集团下属幻维数码公司培训学校负责人；2013年创立上海时刃数字科技有限公司，承接影视动画项目，开发出了儿童教育AR产品，儿童Steam动画课件。

20^{th} Anniversary

Making of

THRU THE MOEBIUS STRIP


20周年感言--
记载着青春的梦想 都在《魔比斯环》的那个年代。
光辉岁月


刘巨红
中国深圳
《魔比斯环》 电影发行
网站设计
www.moebiusstrip.net
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
感谢梁哥们, 指引我走进数码艺术金光大道。
光辉岁月


刘放
中国深圳
《魔比斯环》 角色模型师
个人简介：
45岁加入制作团队, 热爱CG电影。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
感恩在这里遇到很多朋友。
光辉岁月


宋杰
中国上海
《魔比斯环》 灯光师
www.moebiusstrip.net
个人简介：
我是一个灯光师。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--

青春年少的年龄加入环球数码，经历了也见证了魔比斯的诞生，人生足矣，现在不管我身在何处，我都以我是一名环球人而感到自豪。

光辉岁月

谭弦

中国长沙

《魔比斯环》 材质灯光

个人简介：

2002年进入了环球数码，期间在材质灯光组，layout组。

20th Anniversary

Making of

THRU THE MOEBIUS STRIP


20周年感言--
时间真快，一晃二十年了。
光辉岁月


周建武
中国长沙
《魔比斯环》 特效师
www.moebiusstrip.net
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
20年再回首，恍然如梦~
光辉岁月
李彬
中国上海
《魔比斯环》 动画师
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
时间过的太快。
光辉岁月


徐涛
中国潍坊
《魔比斯环》 模型
个人简介：
还介绍啥。从业半生。累但喜欢。
也只会做动画片了。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
不负青春, 不负韶华。
光辉岁月
曹阳
中国广州
《魔比斯环》 特效组服装解算
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--

在这里认识了大家, 开始了新的事业, 感恩大家。

光辉岁月

张润华

中国北京

《魔比斯环》 动画师

个人简介：

大千阳光负责人。


20周年感言--
感谢对我青涩稚嫩的包容。
光辉岁月


汪杰
中国成都
《魔比斯环》 2D设计
个人简介：
从动漫到CG再到游戏一路走来。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--

有幸参与中国CG里程碑式的作品，感到十分荣耀。

光辉岁月

陈晓竹

中国珠海

《魔比斯环》 动画师

个人简介：

从事动画制作与教学20年。

20th Anniversary


20周年感言--
自20年前从IDMT入行，到如今还在本行行走，真好。
光辉岁月


张翊
中国上海
《魔比斯环》 特效
www.moebiusstrip.net
个人简介：
一期学员，现任职于数虎图像。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
动画, 再见, 二十年。
光辉岁月
郭剑华
中国
《魔比斯环》动画师
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
未忘初心，砥砺前行。
光辉岁月


彭飞
中国苏州
《魔比斯环》 动画小组长
个人简介：
2016年动画学院动漫分院副院长。
2018年苏州炫客科技有限公司合伙人、导演。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
二十年了, 怀念那些年可爱的人儿们。
光辉岁月


蒙智慧
中国深圳
《魔比斯环》 动画师
个人简介：
深圳市黑屋文化创意有限公司CEO。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
夢開始的地方。
光辉岁月


陳曦
中国香港
《魔比斯环》特效师
个人简介：
原來已經20年了。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--

转眼20年啦。回想当年真是非常幸运，第一份正式的工作就是自己的梦想职业。能与业界一众大牛一起合作，学到了很多。过程辛苦但快乐！

光辉岁月

何子力

中国深圳

《魔比斯环》 TD 组

个人简介：

太空狗何子力。

20th Anniversary

Making of

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20周年感言--
愿老同事身体健康，工作顺利。
光辉岁月


曹昊
中国上海
《魔比斯环》 3D角色美术
个人简介：
角色美术。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
依然！
光辉岁月


马新宇
中国湛江
《魔比斯环》模型师
www.moebiusstrip.net
个人简介：
大学毕业工作后，凭着热爱来环球。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
一晃20年了，现在仍然在为中国动画事业而奋斗。
光辉岁月


肖亚民
中国深圳
《魔比斯环》 动画师
个人简介：
周迅组的动画师。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
时过境迁，物是人非，我心依旧，看来永恒的只有记忆。
光辉岁月


陶凯
中国深圳
《魔比斯环》剪辑师
个人简介：
我记得那时我的内部ID叫无名小足凯凯。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--

2001年参加IDMT第二期培训班，有幸接触到了当时掌握着世界前沿CG技术的CG艺术家们，在当时来说可谓耳目一新、受益匪浅。虽然学成之后因个人原因未能继续留在IDMT工作，但是，IDMT传递给我的企业文化与行业工匠之精神，一直陪伴与激励着我前行。无论身在何处，一直因为曾经的IDMT经历而自豪。IDMT是中国CG行业当之无愧的黄埔军校，我相信遍布在全国各地的每一名IDMT人，都在为中国CG技术的崛起在默默地坚守并贡献着微薄之力，不枉青春的热情，不枉内心的执着，只为圆一个共同的梦。

光辉岁月

李迎

中国北京

《魔比斯环》学习

个人简介：

北京水晶石数字科技股股份有限公司实训基地总经理。

20th Anniversary

20周年感言--

十年又十年。

光辉岁月

钟硕

中国沈阳

《魔比斯环》layout

个人简介：

制片人、项目管理（co-produitrice et régisseuse）。

20th Anniversary

Making of THRU THE MOEBIUS STRIP

20周年感言--
第一份工作, 美好回忆。
光辉岁月
陈华明
中国深圳
《魔比斯环》 IT支持
个人简介：
深圳市环球数码科技公司技术研发总监。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
能参与制作中国首部三维动画感到自豪。
光辉岁月


邱永梅
中国中山
《魔比斯环》 模型
layout
合成
个人简介：
92年进入动画行业，从传统手绘做到三维动画，跟随动画行业的发展一起成长。因具有多年工作经验，后转入培训部搞教学，为动画行业尽一份力。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
银幕上完美的画面, 浸透着艺术家们无数的心血, 很开心参与了这部电影, 独一无二的体验。
光辉岁月
邱嶷泉
中国广州
《魔比斯环》 渲染组助理
个人简介：
03年第三期毕业学员，9月入职渲染组，主要是协助组长及小组长进行渲染进度管理。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--

当年招来的学员绝大部分都参与了《魔比斯环》的制作, 很多人后来成为数字视觉行业的精英。在邦哥和Raymond的感召之下, 因为《魔比斯环》而聚集起来的这个集艺术和技术于一体的伟大团队在21世纪的起点开始引领了中国乃至亚洲数字视觉产业的新发展。 如今, 人才的培育和产业的兴旺这些当年的愿景和使命都得以实现, 邦哥和Raymond作为拓荒者功德无量。

光辉岁月

喻襄生

中国广州

《魔比斯环》 学员管理主任

个人简介：

一直都在IDMT，提供技术支持服务。

20th Anniversary

Making of

THRU THE MOEBIUS STRIP


20周年感言--
环球十年, 22岁-32岁, 够了。
光辉岁月


侯昱峰
中国长沙
《魔比斯环》 系统工程师
个人简介：
环球十年。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--

时间如白驹过隙，再回首时，当初那群聚集在未名湖畔的青年们已然散落各地，向上生长，在过去的二十年里为中国的CG行业发挥力量。《魔比斯环》是一个行业工业化的起点，更是串起IDMT人一根纽带，可以缩减彼此间寒暄，凭添亲切。

光辉岁月

李晴宁

中国北京

《魔比斯环》 材质灯光师

个人简介：

动画制片人，动漫内容制作人。

20th Anniversary

Making of

THRU THE MOEBIUS STRIP


20周年感言--
IDMT的兄弟姐妹们永远一家亲，事业长虹。
光辉岁月


刘永鑫
中国北京
《魔比斯环》 动画师
个人简介：
不忘初心，依然热爱动画热爱CG。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

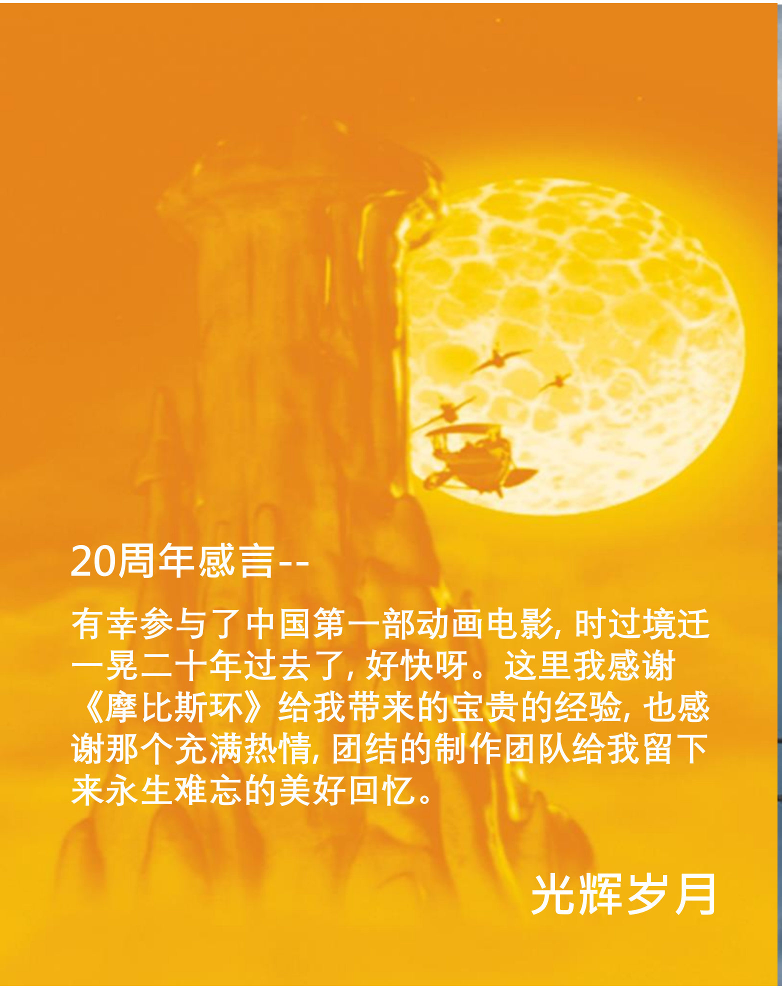

20周年感言--
当年是抱着进入中国的皮克斯，工业光魔进来的环球数码，可惜事与愿违，梦想与现实差距有点大，还好梦想一直在，从来没有泯灭过，希望有朝一日，活着见到中国人自己的科幻电影团队能够与世界第一流的影视制作公司比肩，创造史诗级的辉煌奇迹！
光辉岁月
萧玫
中国深圳
《魔比斯环》PA
个人简介：
科学与幻想成长基金理事。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
感谢环球, 感谢魔比斯环, 带我入了行。
所有过去的经验, 都令未来的自己变得更好。
光辉岁月


林挺
中国广州
《魔比斯环》AIA & PPS 组员
个人简介：
广州像素顶点数字科技有限公司联合创始人。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--
20年过去，一切都是那么美好，都是那么充满记忆！！！
光辉岁月
史天赫
中国贵阳
《魔比斯环》 培训部讲师
个人简介：
在环球工作5年，负责材质和后期教学，培训学员300多人，为电影输生产送了大批人才。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--
被《最终幻想8》的MV点燃，参与到电影制作是当时最的大梦想，在环球、在国外的总监指导下，在亲密的兄弟陪伴下，经历了一段难忘的激情燃烧的岁月！！！
光辉岁月
赵治名
中国广州
《魔比斯环》 动画师
www.moebiusstrip.net
个人简介：
混迹在动漫，游戏和互联网领域的82年东北大叔。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
有幸参与了中国第一部动画电影，时过境迁一晃二十年过去了，好快呀。这里我感谢《摩比斯环》给我带来的宝贵的经验，也感谢那个充满热情，团结的制作团队给我留下来永生难忘的美好回忆。
光辉岁月


杨卫
中国滁州
《魔比斯环》动画师
www.moebiusstrip.net
个人简介：
目前在北京狮门广告影视公司担任动画总监。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
一晃20年过去了，真怀念还年轻的日子。
光辉岁月


王龙
中国青岛
《魔比斯环》特效师
个人简介：
徘徊影视动画圈。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
依然爱你！！！
光辉岁月


马新宇
中国深圳
《魔比斯环》 模型师
个人简介：
大学毕业工作，因为梦想来到环球。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--

认识了很多一辈子有交集的朋友们，难忘的经历，难忘的人和事，有幸加入这个行业里来。

光辉岁月

刘书剑

中国武汉

《魔比斯环》 动画师

个人简介：

毕业后环球数码，读研留校武汉大学国家软件学院聘用老师，恩绘数字科技有限公司做运营主管。

20th Anniversary

Making of

THRU THE MOEBIUS STRIP

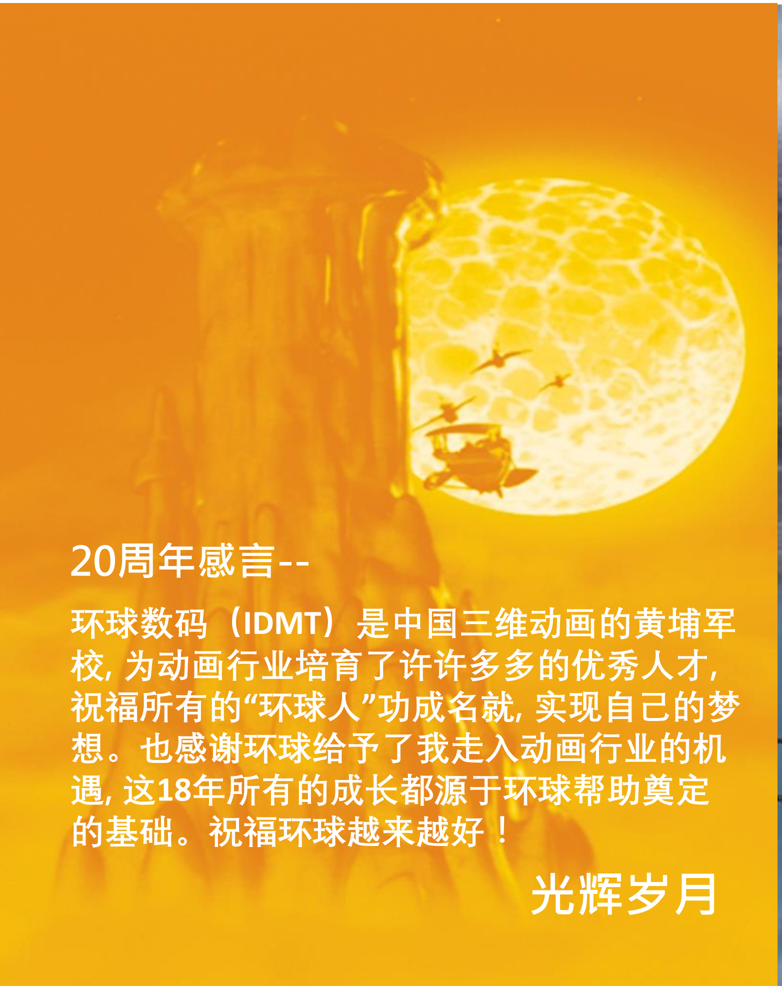

20周年感言--
感谢Raymond为代表的环球数码创始团队，
让曾经年轻的我们在激情、混乱、忙碌中一
起度过了一段终身难忘的学习和工作经历！
光辉岁月


杨骏
中国深圳
《魔比斯环》材质灯光
个人简介：
一直毁人不倦的杨老师！
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
光辉岁月


陈兆强
中国广州
《魔比斯环》 场景组
www.moebiusstrip.net
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
路漫漫其修远兮，吾将上下而求索。
光辉岁月
王澄宇
中国北京
《魔比斯环》 培训部教师
AIA
个人简介：
2000～2002 就职 IDMT 银河长兴制作总监。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP



20周年感言--

环球数码（IDMT）是中国三维动画的黄埔军校，为动画行业培育了许许多多的优秀人才，祝福所有的“环球人”功成名就，实现自己的梦想。也感谢环球给予了我走入动画行业的机遇，这18年所有的成长都源于环球帮助奠定的基础。祝福环球越来越好！

光辉岁月

张蕊

中国长春

《魔比斯环》特效师

个人简介：

吉林动画学院副院长。

20th Anniversary

Making of

THRU THE MOEBIUS STRIP


20周年感言--
凡是过往，皆为序章，所有将来，皆为可期。
光辉岁月


苏娜
中国北京
《魔比斯环》特效师
个人简介：
Huhu中国区代表，华尚天成合伙人，创始人。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
不忘初心（学三维）方得始终！
光辉岁月


曾艳
中国深圳
《魔比斯环》灯光师
www.moebiusstrip.net
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
在环球的日子好像一个大家庭, 兄弟姐妹都
在为了同一个愿望而努力, 为爱发片。
光辉岁月
崔颖
中国深圳
《魔比斯环》特效制作及培训
个人简介：
参与电影结算制作及为公司培养人才。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
Moebius感觉是代表了青春，刚到IDMT的时候20岁，现在转眼41岁了，太多的回忆停留在那个年代。
光辉岁月
乐伟
中国上海
《魔比斯环》角色模型
个人简介：
曾经的青葱少年，现在的中年男子。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
怀念过去！
光辉岁月


魏丽萍
中国深圳
《魔比斯环》 后期
个人简介：
带着枷锁起舞的艺术家！
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
特意找到一张老照片，一起怀念与青春有关的日子。
光辉岁月
田亮
中国深圳
《魔比斯环》行政部职员
I·D·M·T
环球数码媒体科技研究(深圳)有限公司
个人简介：
2002年4月入职, 环球数码行政部。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--

感谢那段时光，让青春无悔。

光辉岁月

任莉

中国北京

《魔比斯环》灯光师

个人简介：

因为喜欢，在动画行业工作了18年……为今日仍在努力的同学们加油！期待看到更多优秀的中国动画电影。

20^{th} Anniversary


20周年感言--
魔比斯环是我进入这个行业的参与的第一部
电影, 也是人生中最珍贵的回忆。
光辉岁月


朱晶
中国长春
《魔比斯环》材质灯光师
个人简介：
BFA: Fine Art; MFA: Visual Development.
在三维动画领域从业10余年，从材质灯光后期
到前期设计，一直热衷于画面美学与概念设
计。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP


20周年感言--
20年弹指一挥间。
光辉岁月


秦南
中国深圳
《魔比斯环》模型师
个人简介：
环球数码模型指导。
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--

20年啊，眨眼就过了。

光辉岁月

张渲娅

中国深圳

《魔比斯环》 TD

个人简介：

2002年环球第三期学员，2003年加入环球数码，在渲染的TD部门工作。


20周年感言--
永远青春的记忆。难忘。
光辉岁月

孙涤新
中国哈尔滨
《魔比斯环》 动画师
20th Anniversary
Making of
THRU THE MOEBIUS STRIP

20周年感言--

想念大家, 怀念一起做电影的日子！ 难忘IDMT, 梦想起飞的地方！。

光辉岁月

袁建萍

法国

《魔比斯环》导演助理

个人简介：

CREASUP DIGITAL (FRANCE)。

20th Anniversary

Making of

THRU THE MOEBIUS STRIP


Making of
THRU THE MOEBIUS STRIP
感谢你们　Thanks to you all


Making of
THRU THE MOEBIUS STRIP

www.moebiusstrip.net

The Making of Thru the Moebius Strip

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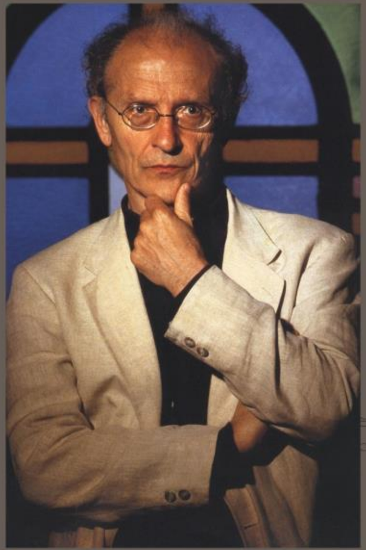
Jean "Meobius" Giraud



Jean Giraud, a.k.a. Moebius, is an artist whose work as an illustrator has garnered him many of the world's most prestigious awards. Giraud has been widely acknowledged as being one of the major, modern day influences in the visual arts field.

Born on May 8, 1938, in Mogent-sur-Marne, near Paris, France, Moebius displayed a love of illustration at an early age. Later in life, he attended the School of Applied Arts. In 1954, while still at school, he wrote and drew his first western strip Frank & Jeremie, thereby launching a career as a prominent western illustrator.

After being discharged from the army in 1960, Giraud worked as assistant to the famous Belgian artist Joseph Gillain("Jije") on his Jerry Spring western series, and later as an illustrator for a series of encyclopedia-like books for Hachetter. It is at that time that Giraud created the punish signature of "Moebius" which he used to sign dark humored comic strips in the satirical magazine HARA-KIRI.

In 1963, Giraud met writer Jean-Michel Charlier and, together, the two created the character of Lieutenant Blueberry for the weekly magazine PILOTE. Eventually, this became one of the most celebrated western epics in the world of comics. The Blueberry saga now contains 24 books, and two spin-off series (12 volumes).

In the late 1960s, as Meobius, Giraud began illustrating a line of French science-fiction books and magazines. Eventually, this led to the "return" of Moebius as a full-fledged comics artist. In 1975, Giraud co-founded the magazine METAL HURLANT. For it, he created a number of seminal, bread through science-fiction and fantasy stories, such as Arzach and The Air-tight Garage, and The Long Tomorrw(written by Dan O'Bannon) which were later to influence an entire generation of new artists.

Moebius's impact on the worlds of comic art and science-fiction has been enormous. His influence spread to America with the creation of the magazine HEAVEY METAL(1977), which first translated and reprinted his stories, then later, issued three books devoted to his works.

An increased amount of exposure brought Moebius' work to the attention of film-makers, enabling Giraud to embark on a new career: that of design conceptualist for the motion picture industry. The first filmmaker to be drawn to Moebius by his sense of visual imagination was Alxandro Jodorowsky, who hired Giraud to storyboard and completely design his production of Dune. Giraud's collaboration with Jodorowsky continued, with The Incal, a six-volume comic-book science-fiction saga.

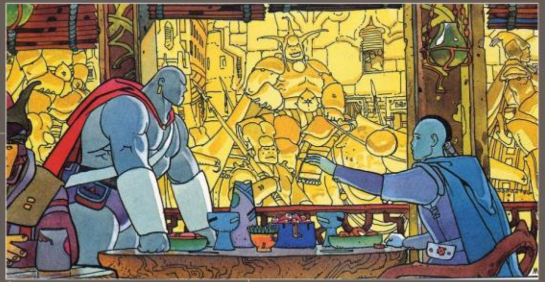
As a result of his work on Dune, Giraud was invited to participate in the production of Ridley Scott's Alien, for which he designed many space units and uniforms. In 1981, Giraud was contacted by producer Donal Kushner and Director Steven Lisberger to storyboard and work on the designs of their new Walt Disney Production film, Tron. In 1984, Giraud worked on Nemo, an animated adaptation of Winsor McCay's celebrated comic-strip.

Giraud has worked on the design of characters and concepts for the live action adaptation of Masters of the Universe (1986); for Willow, a heroic fantasy picture produced by George Lucas and directed by Ron Howard (1987); for the Abyss, a science-fiction picture written and directed by Jim Cameron (1988); and more recently, for Luc Besson's science-fiction epic, The Fifth Element. He has also contributed for the designs of Euro-Disneyland for Walt Disney.

A new American collection of Giraud's comics work was published, mostly through the Marvel Comics Group, in the 1980s. With thirty-four volumes released, these books broke sales records in their category, and ranked among the top ten money gross products in the comics industry. Giraud drew a special edition of The Silver Surfer for Stan Lee and Marvel Comics in 1988.

Giraud is also regarded as one of Europe's top commercial artists. His works comprise book covers (Kurt Vonnegut, Robert Silverberg, etc); record album covers (Jimi Hednrix, Guy Beart, etc); and magazine covers (Glamour, Le Monde, etc.), as well as many advertising campaigns. In the last decades, seven coffee-table collections of his designs and commercial artwork have been published: Chaos, Metallic Memories, Venise Cleste, Starwatcher, The Art of Moebius, Made in LA, Quatre-Vingt-Huit, and Fusa.

Giraud's original art work has been exhibited in France, Austria, Belgium, Canada, Italy, Mexico, and the United States. He was consecrated "Best Artist in Graphic Arts" by French Minister of Gulture Jack Lan and, in 1985, was decorated "Chevalier des Arts et Des Lettres" (Knight of Arts & Letters, the highest French decoration for cultural and artistic achievements). A postage stamp honoring him and bearing one of his designs was issued by the French government in 1988.



Introduction

Invested and produced by Global Digital Creations Limited Company, Thru the Moebius Strip is a full CG animated movie made by a production team of veteran Hollywood movie-makers and CG artists from Mainland China and Hong Kong.

The movie is based on a story by the prominent French artist Jean Moebius Giraud, who has taken part part in designing many Hollywood movies (The Abyss, The Fifth-Elements, Nemo and Masters of the Universe, etc.) and a script by the Hollywood screenwriter Jim Cox. Glenn Chaiker, the director of the movie, has over ten-year's experience in making animated features such as Disney's Little Mermaid. The American and Canadian supervisors who participated in the production, such as Kelvin Lee, Bob Koch, Wayne Kennedy, Manny Wong and Jeff Cappleman etc., also have extensive experience in major motion pictures, such as Hollow Man, Patriot, Toy Story, etc.

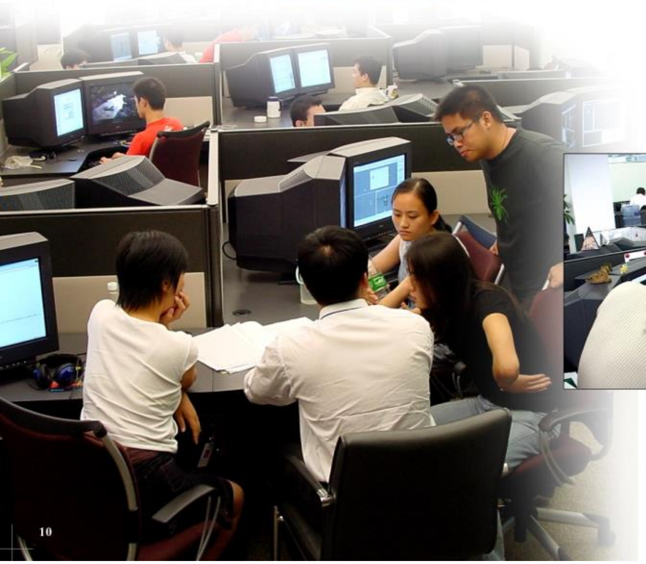
Most of the CG artists on the production were trained by the Institute of Digital Media Technology (IDMT) in Shenzhen, and they represent one of the most concentrated pools of CG talents in China. IDMT currently employs over 300 CG artists, most of them went through the companies' training and internship program before they join the production.

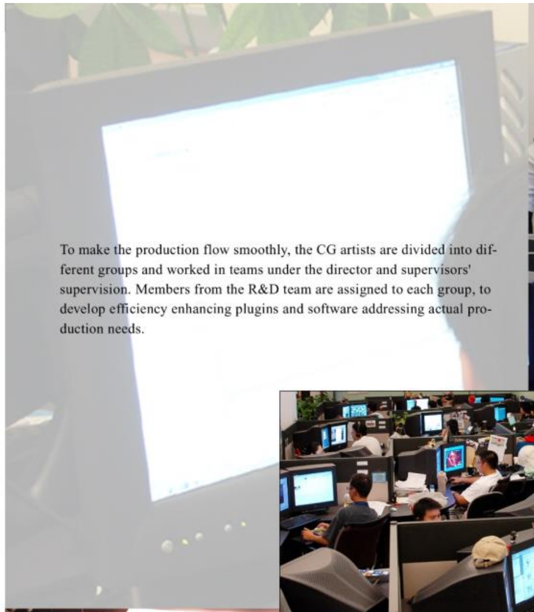
The storyboard artists and designers on the project came from famous art schools in China, with good backgrounds in fine arts and plenty of experience in design. They created images of story, characters, sets, props, and more, which are very important for planning the production.

In the pre-production stage of the movie, this team not only illustrated the entire movie, but also drew numerous color scripts and detailed schematics, which also helped to clarify and unify the movie's visual conceptions.

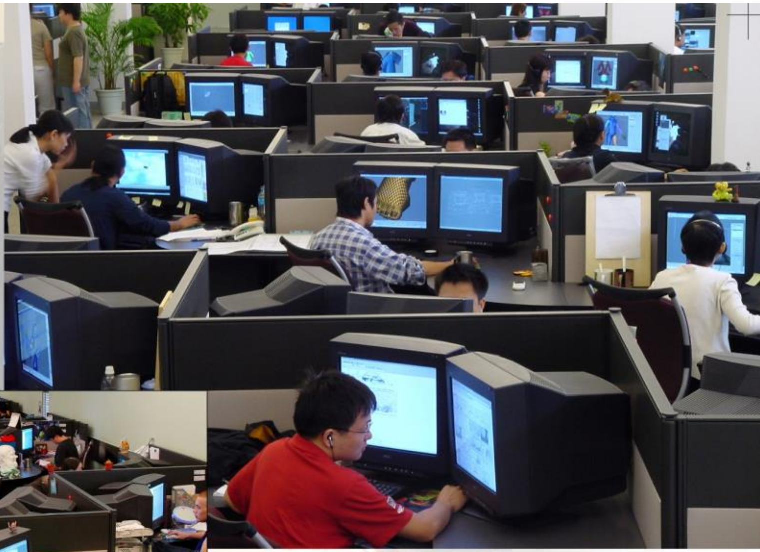
IDMT's sculpture department provides scale models for conceptual and scale references as well as for digitization into CG models. The sculptors also produces scultures for

IDMT developed its own database system for the production. All the 3D files are linked to the corresponding 2D images and files. This huge undertaking pays off as it allows the CG artists to review the story, the characters, reference images, camera schematics very quickly.

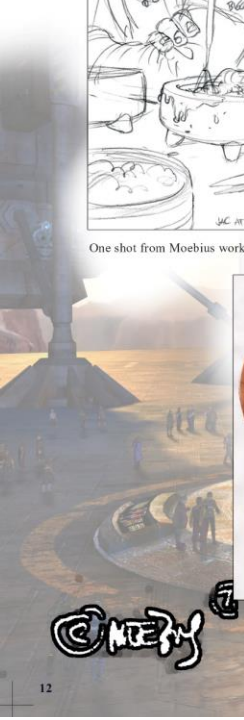




To make the production flow smoothly, the CG artists are divided into different groups and worked in teams under the director and supervisors' supervision. Members from the R&D team are assigned to each group, to develop efficiency enhancing plugins and software addressing actual production needs.



The production checks dailies in 2K resolution with a digital cinema equipment developed by GDC Technology Ltd., which helps it spot potential problems early.



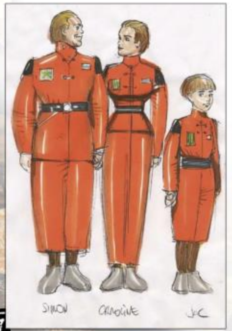
One shot from Moebius works

Thru the Moebius Strip is a sci-fiction movie, which tells a story happened in two different world in future.

Jac Weir is a mischievous but smart 13 years old. He is looking for his father, Simon Weir, a scientist who eight years ago activated a portal that allows direct travel between any distances as a result of his research into the Moebius Field.

Jac's search is answered by a flashing ring of light - a opening created by another Moebius portal, powered by the alien magic of a world called Raphicaa. However, Simon's contacting of Jac is cut short by Raphicaa's evil king, Tor, when he discovered the alien portal and arrested Simon.

When Tor forces Allana the priestess to use magical crystals to activate the alien portal, Ragis, the prince of Raphicaa who grown up under the guidance of Simon, does not know that his father was kill by Tor for the throne. However, Ragis finally discovers the truthand escapes Tor's castle with Allana to join the rebels, who are still loyal to theformer king.



Character designs of the Weir Family: Simon, Caroline, and Jac

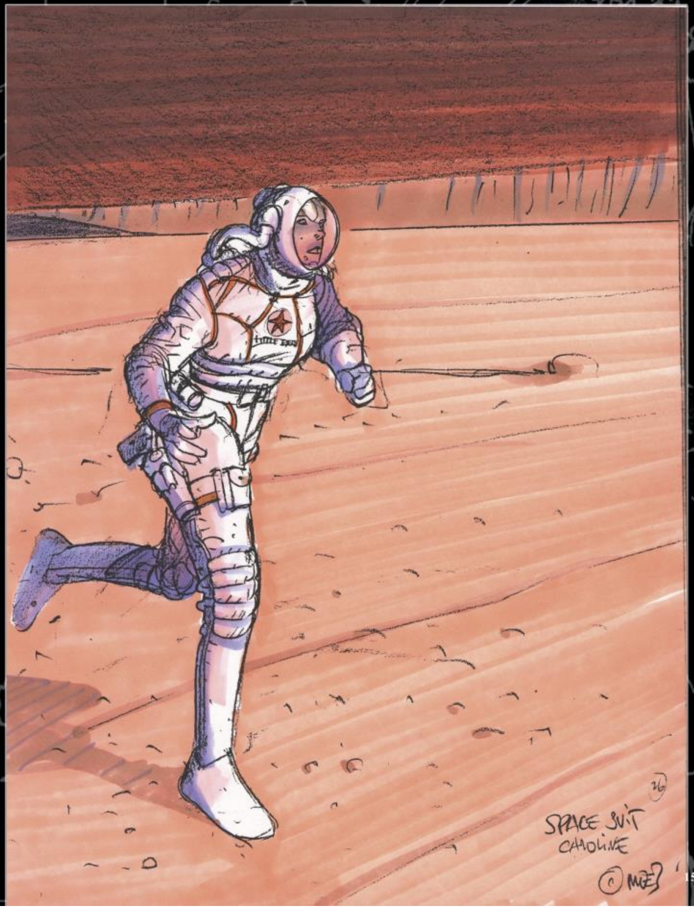
Aliens looking at Simon in a cage with surprisely

Storyboard: Jac is thinking of his father inside the treehouse.

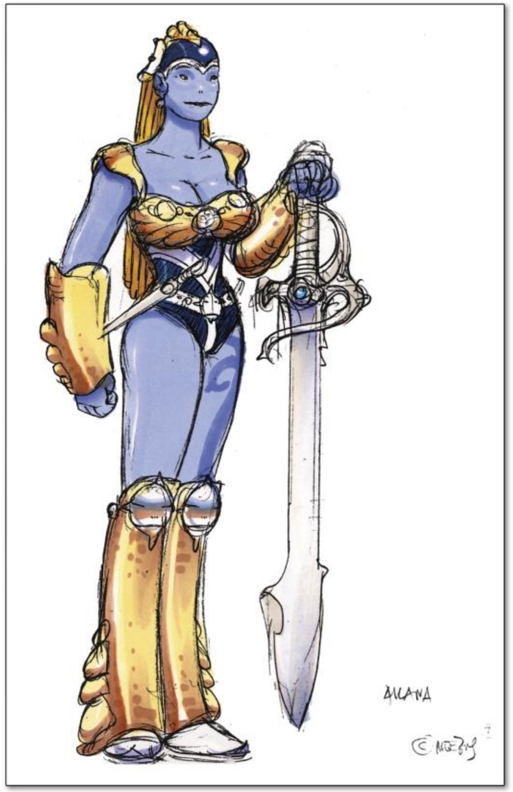
Moebius' character design of Caroline Weir.

Moebius' character design of Jac and Simon

Jac's mother Caroline finally agrees to look for Simon with Jac. They leave their space farm despite of a restraining order from the government and arrive at Simon's secret laboratory. Jac re-activated the unstable portal and jumped into an opening leading him into the alien world of Raphicaa, leaving his mother behind.



Jac meets Ragis in the alien world. Though they are of the different races and are from the different world, they found something in common: Simon. Together they come up with a plan to save Simon from Tor's castle, which is strongly fortified.

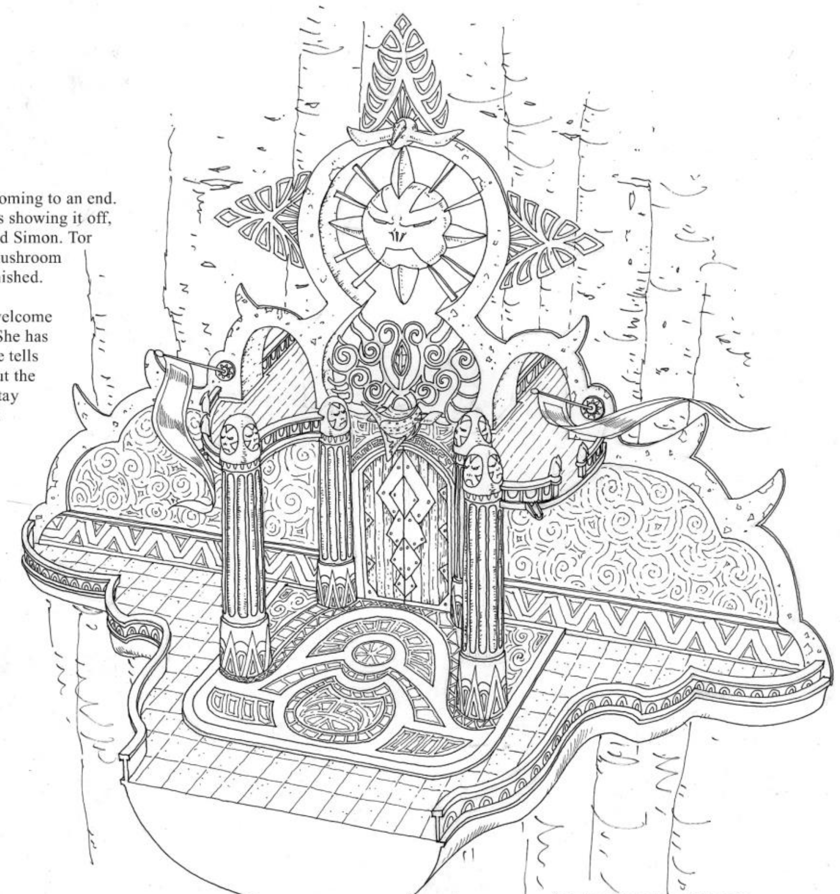


Jac and Bodkus on strategies

Crystal magic in the alien world

A century of peace in the alien world is coming to an end. Tor has rebuild Raphicaa's army. While he is showing it off, Jac and Ragis sneak into Tor's castle to saved Simon. Tor orders an attack to the rebels' camp in the mushroom forest after he discovers that Simon has vanished.

Jac, Simon and Ragis returns to a hero's welcome in the rebel's camp. Caroline is also there. She has rewired the portal in Simon's laboratory. She tells her family that they can go back together, but the news of Tor's attack comes. Jac decides to stay and fight with Ragis. He parents agress and the family helps the rebels prepare for their war with Tor.

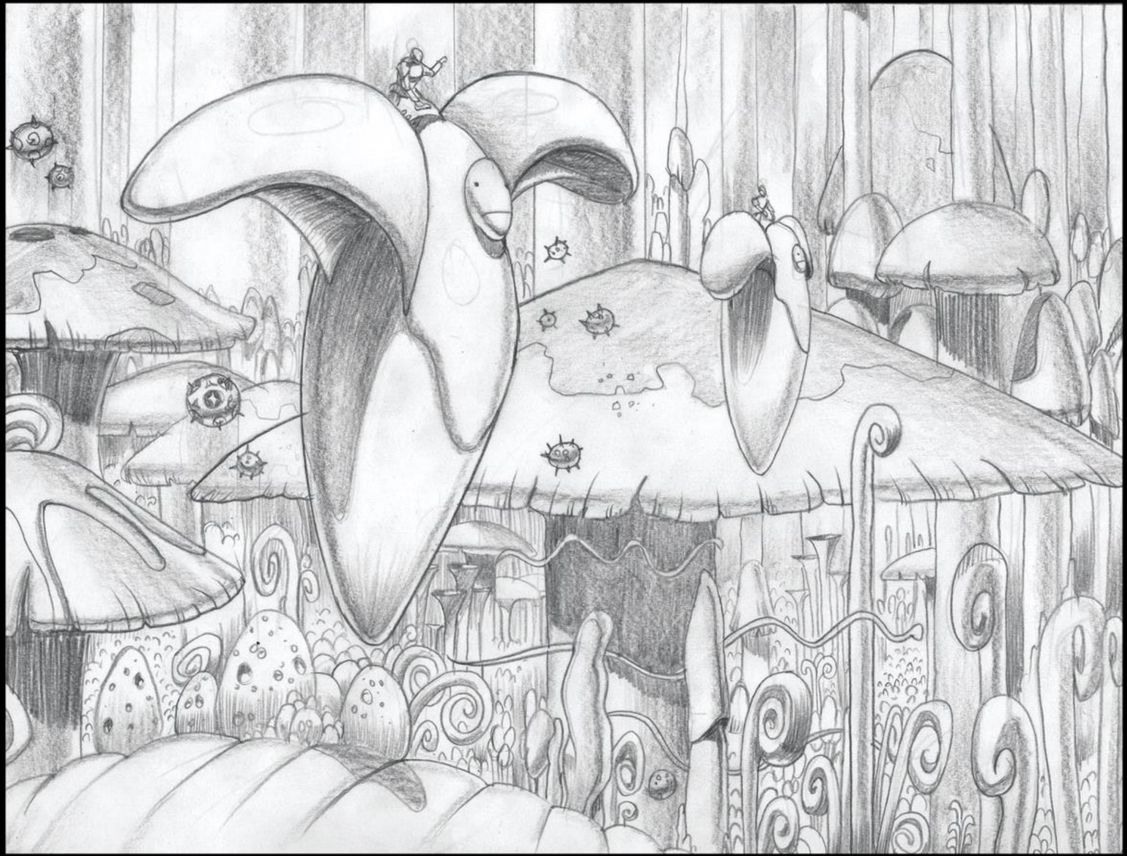


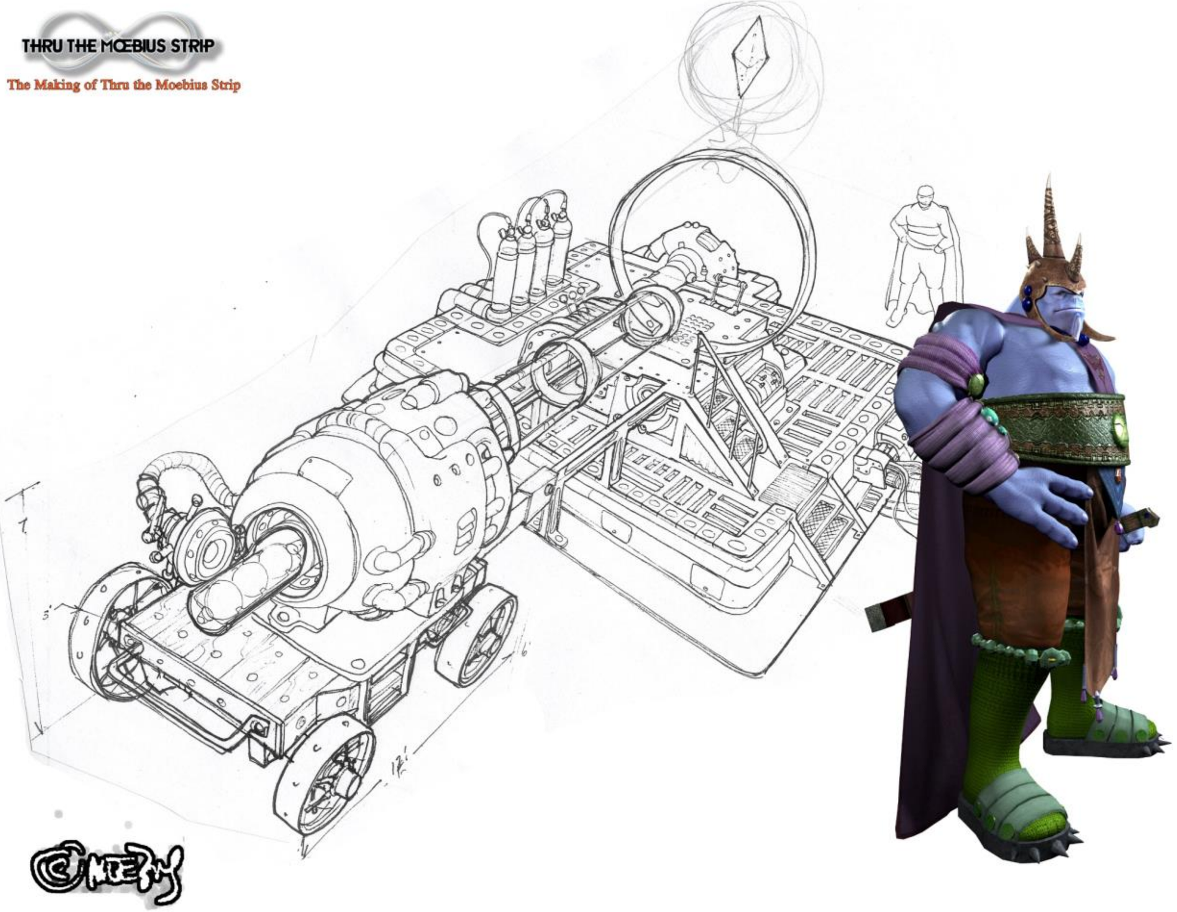
Sculpture of the exterior of the castle

Reference images of the mushroom forest

In the climatic battle, Tor's army has advantage in numbers but the rebel makes up for the difference by strategy. Ragis finds Tor in the battle field and overcomes him in their sword fight. The magical forces latent in the alien world responds to Ragis' sparing of Tor's life and spreads the power of peace throughout the land to stop the battle.

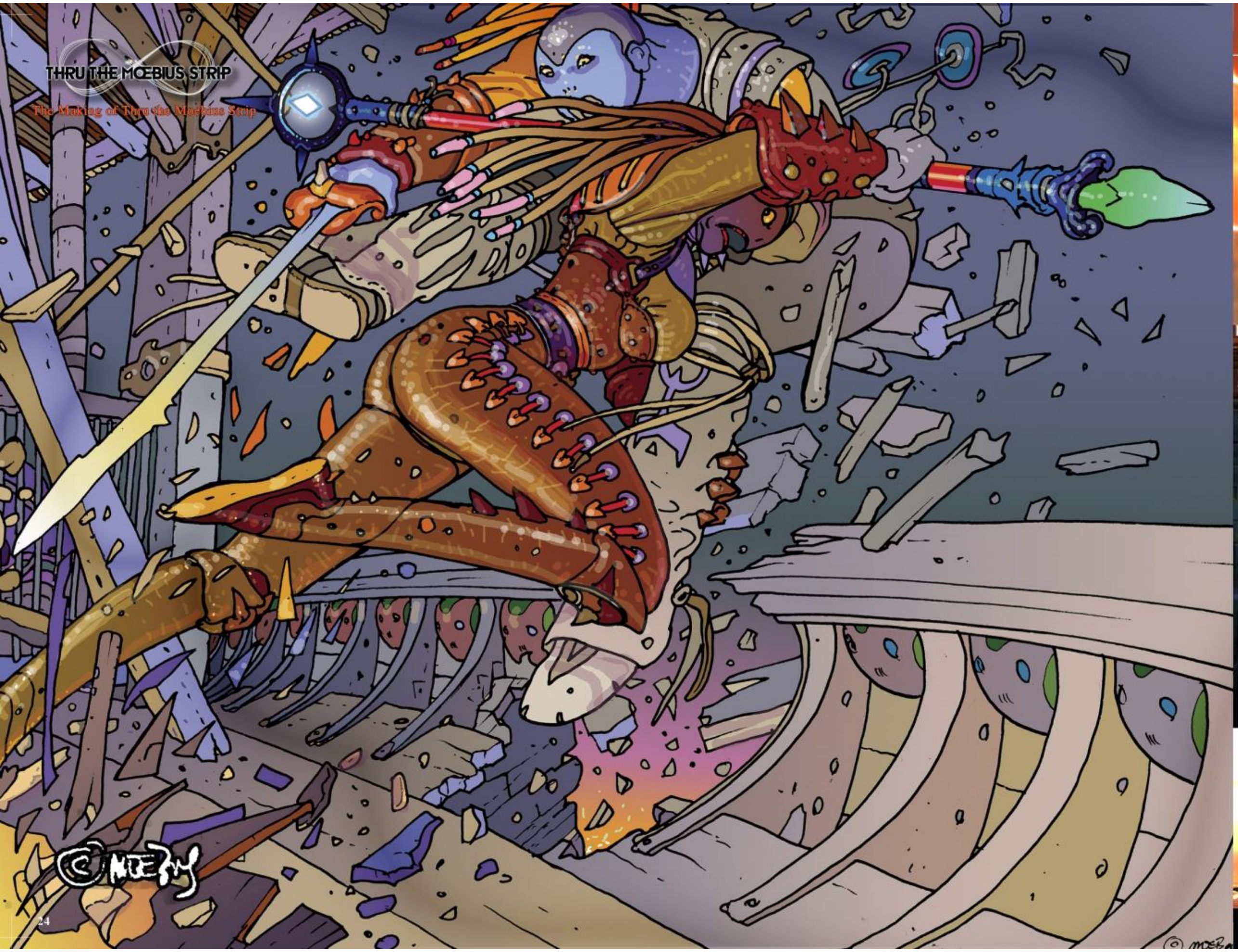
Tor wounds Allana and escapes the battle field with her magical crystal. Jac and Ragis chase Tor to his castle, but Tor has already activiated the portal. While Ragis fights Tor, Jac tries to disable the portal by pulling crystals out of the portal. Tor goes after Jac but misses. His sword shatters one of the crystals instead.



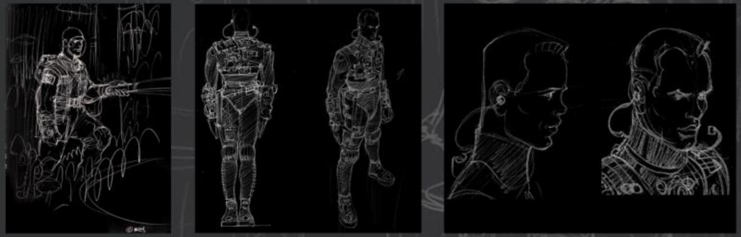


The portal is out of control. It sucks everything into its opening. Ragis manages to hold on to Jac but Tor flies into the hole.

Days later, the Weir's family attended crowning ceremony of Ragis, a celebration of Raphicaa's return to peace, thanks to the efforts of both human beings and aliens.



Simon successfully passed through the portal to the alien world for the first time.



Simon in Spacesuit

Simon

Simon is Jac's father. He is a famous scientist and developed a secret technology entrusted by the government. Simon is quite serious to his work and works very hard even stays far away from his family. He is loyal and warmhearted. He loves his wife and son. Same as Jac, he is strong-minded, which caused him entered the portal without any protection. At last, he found his life is totally changed. Now he is treated as a pet in the lowest part of the alien world, thought he once was in the top class on the earth.

Jac is the main character of the movie. He is 13 years old and has grown up without his father. He refuses to accept that his father is dead, which complicates his relationship with his mother. He is smart and good at technology.

Caroline has never thought that she would become a single mother. Simon's disappearance almost bankrupts her emotionally and she misses Simon very much. She suppresses her feelings to put up a strong and capable front so that Jac can depend on her. To do so, she forces herself to give up the idea that Simon is still alive. She is troubled and bleak but has deep longings.

Jac watches his father's hologram inside his treehouse

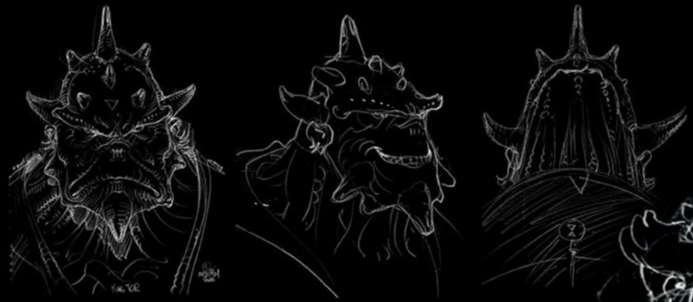
Caroline is shocked

Caroline asks Jac to forget Simon

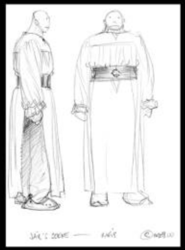
Caroline takes Jac to school

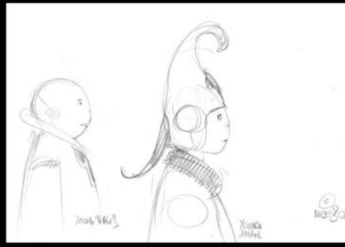
King Tor

He is Ragis' uncle. He ascended to the throne by killing Ragis' father. He is very full of himself. His lust for power is so strong that he wants to master the universe. He is violent, evil and cunning. He is a selfish opportunist that turns every situation into his advantage. Whenever he sees Ragis, he is reminded of his guilt of killing his own brother. He is in awe of Shepway and fears her knowledge.



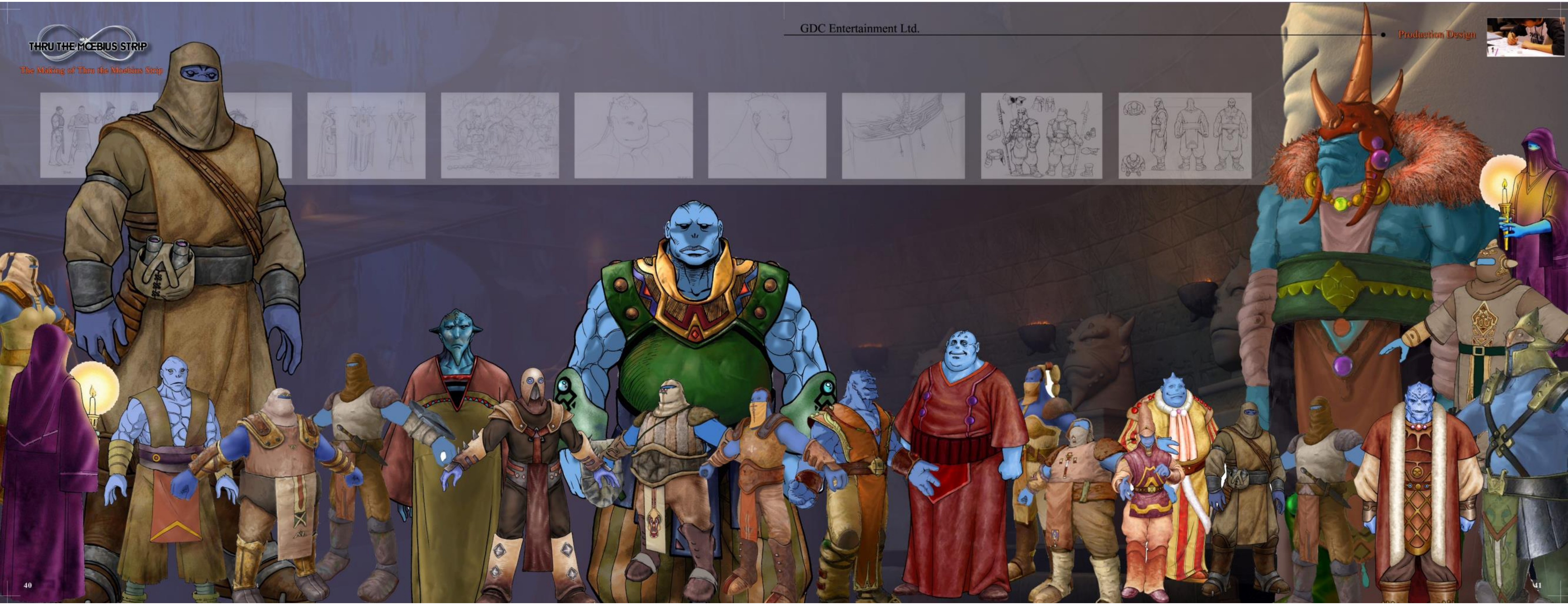
Ragis is King Tor's nephew, the successor of the throne. He has only vague memories of his parents because for him they died too early. Ragis is quite loyal to King Tor as a father figure. He faces challenge with daring and danger with bravery and calm. Ragis knows his impatience and often reflects upon it. He is smart, energetic, charming, humorous, honest and dependable. Ragis is very close to Allana and they trust each other strongly.





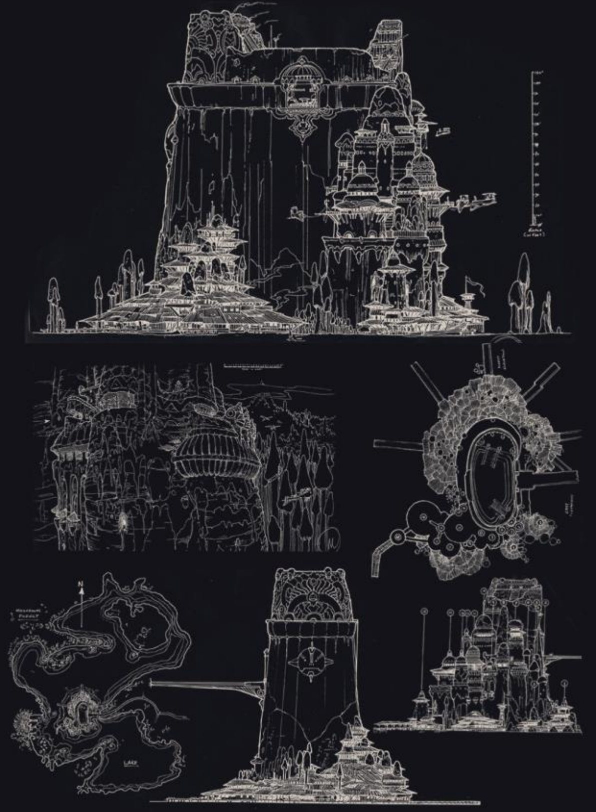
Allana is Shepway's grand-daughter. Allana is sexy, pretty and simple. She has a loyal heart, smarts covered by her quiet and mild personality. She learns crystal magic from Shepway. She is innocent, honest and trustworthy. Allana is also active and attracts everyone who knows her. She was cute and active when she was little.

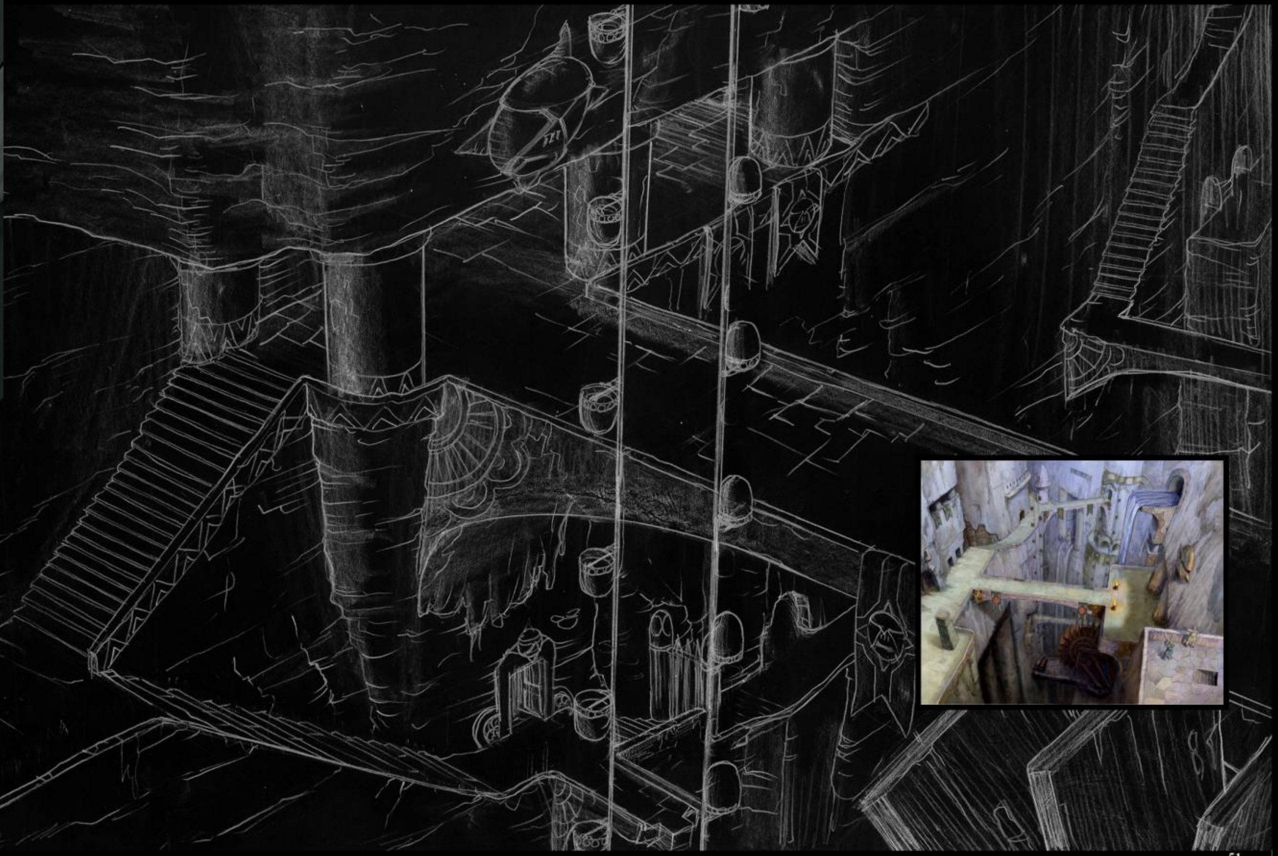
Shepway is a high priestess. She is wise and powerful (the most powerful person in the movie.) She is very old that nobody knows how old she is. She is like Ragis and Allana's grandmother. She respects Simon very much and understands his circumstance. She knows a lot of the secret in the royal family. Shepway is mild and kind and she knows she is not immortal that she must find a successor. Sheway needs to find someone she can trust with all the secrets of the crystal. She stays with Allana and trains her into a priestess as greatest as she is.

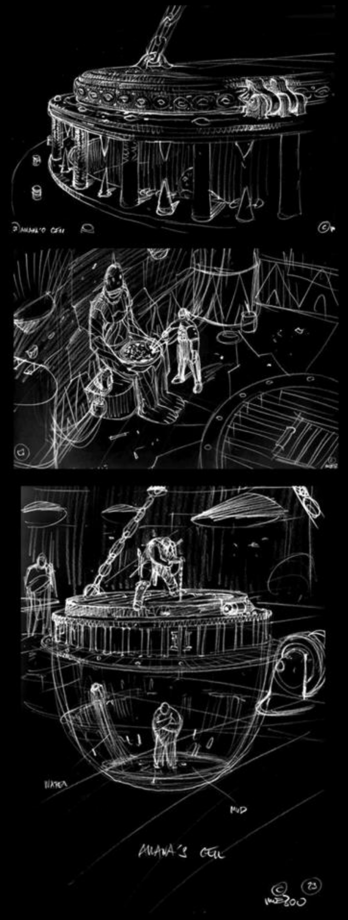


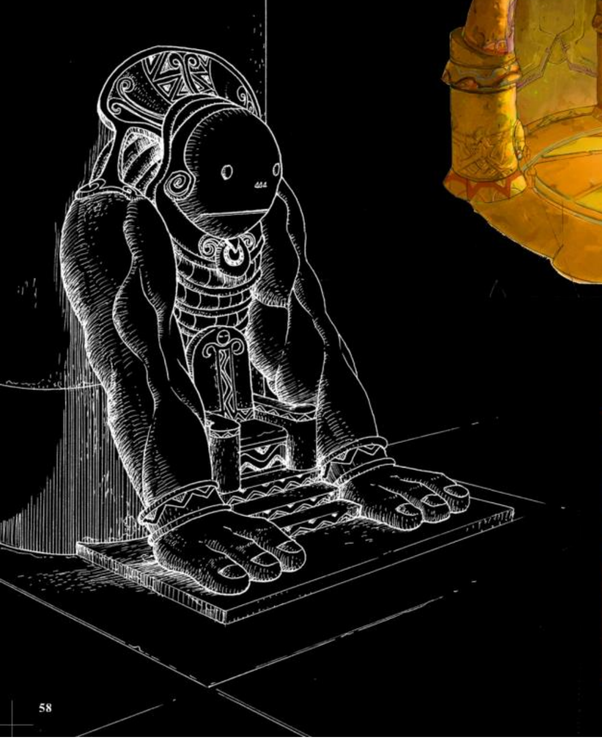

tromit_backview
Alex. 2003.03
tromit_backview

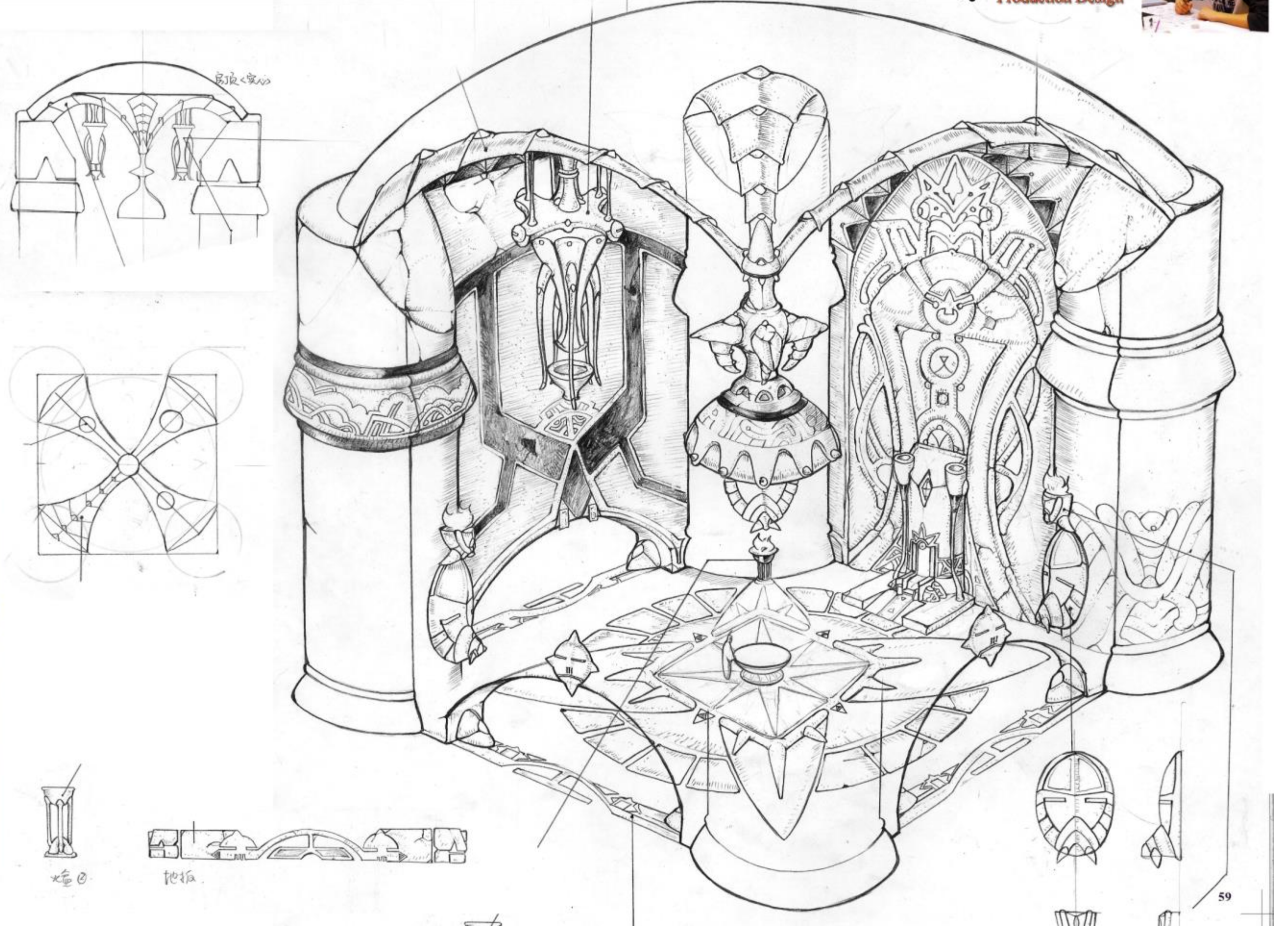

POLYCE
CHEF

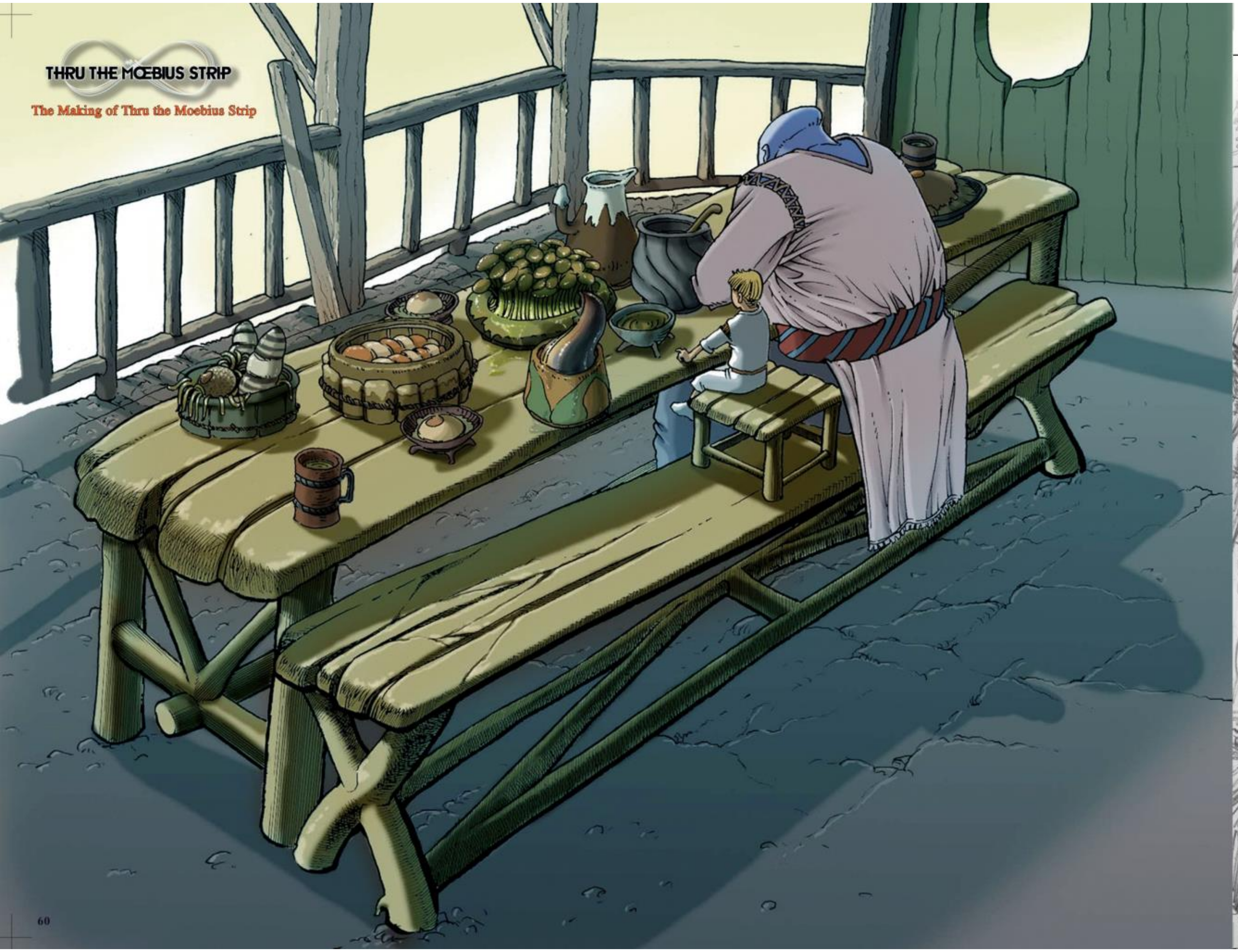


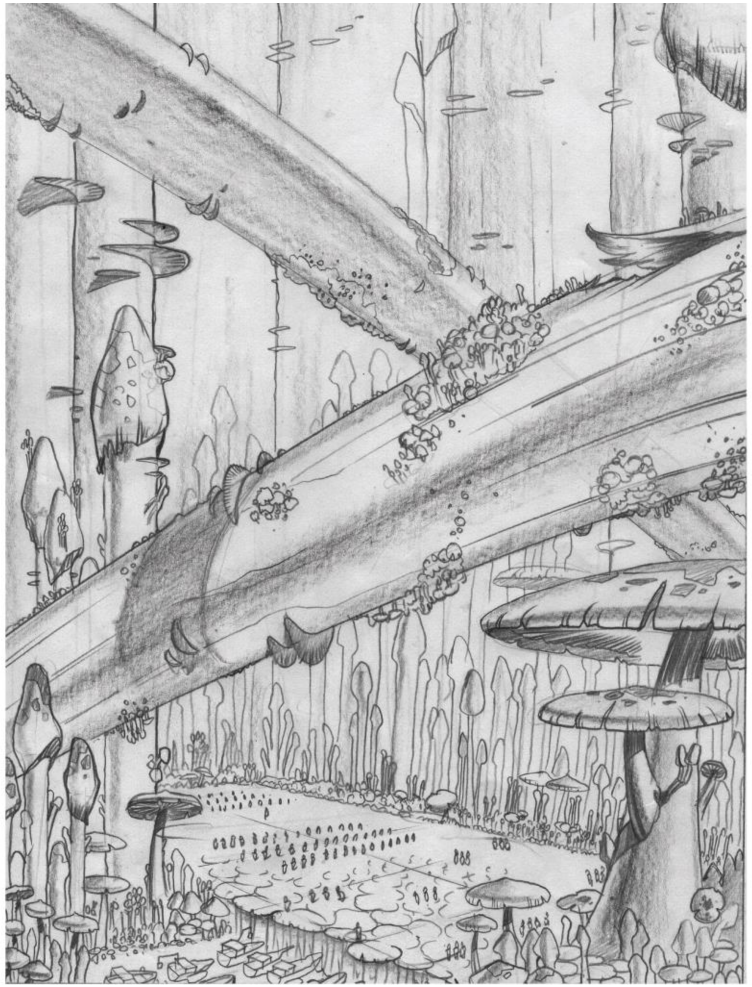


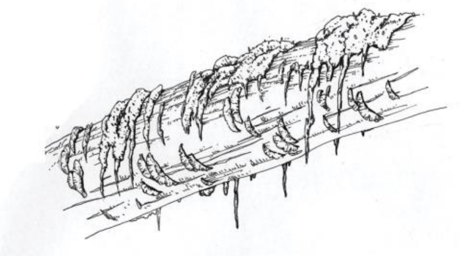


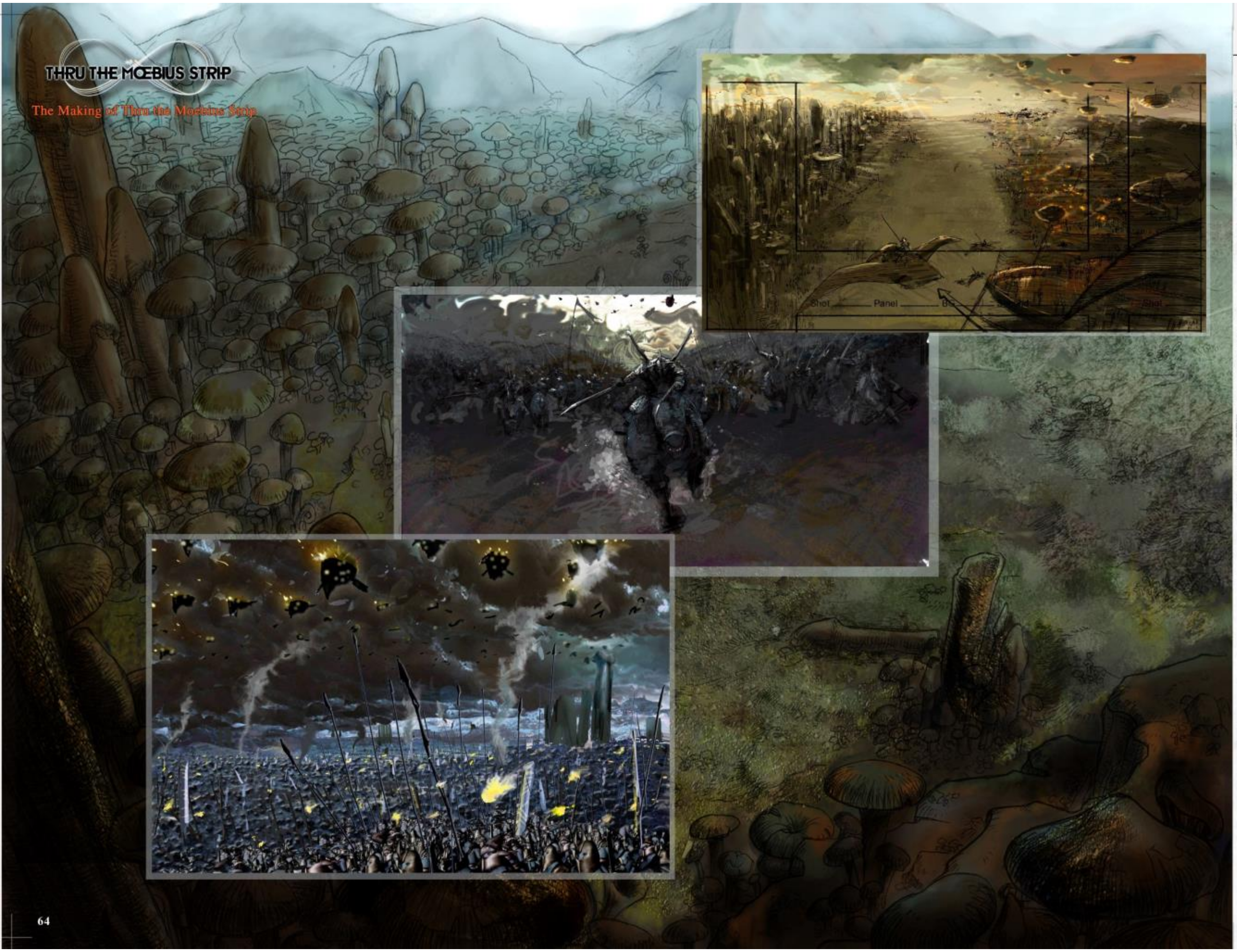


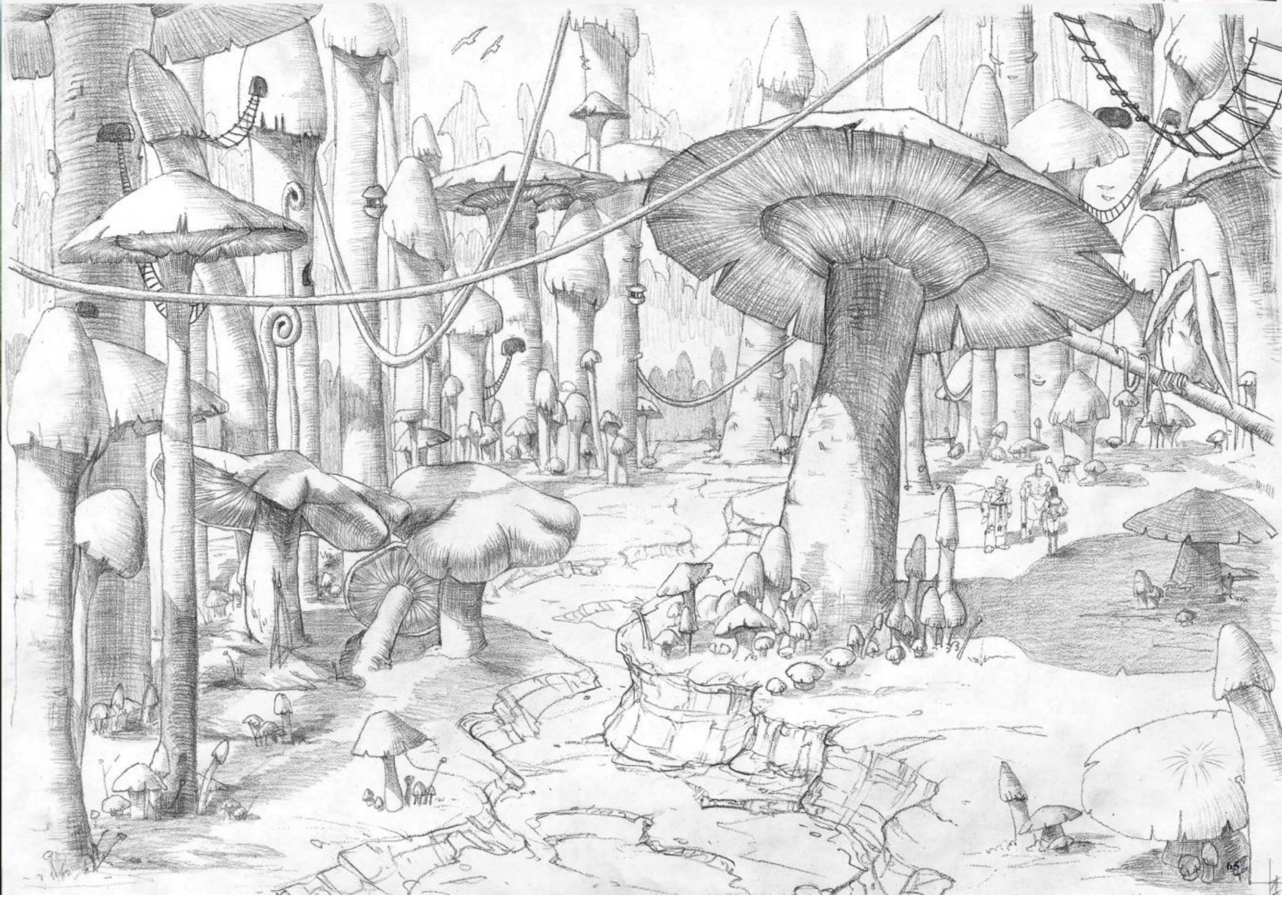


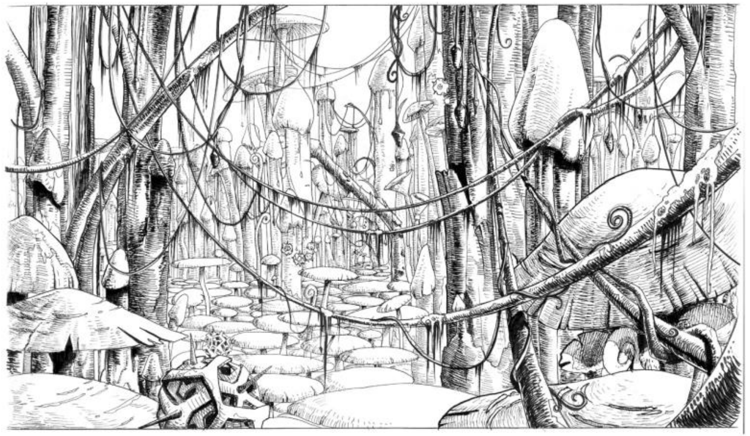


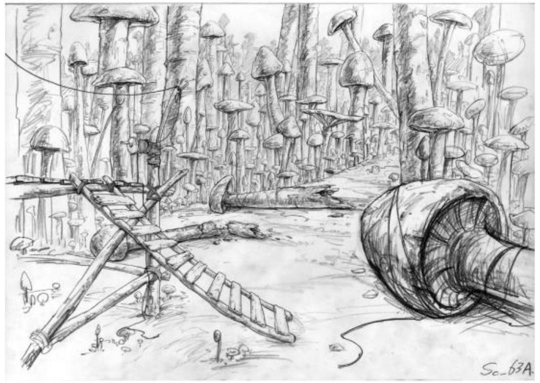




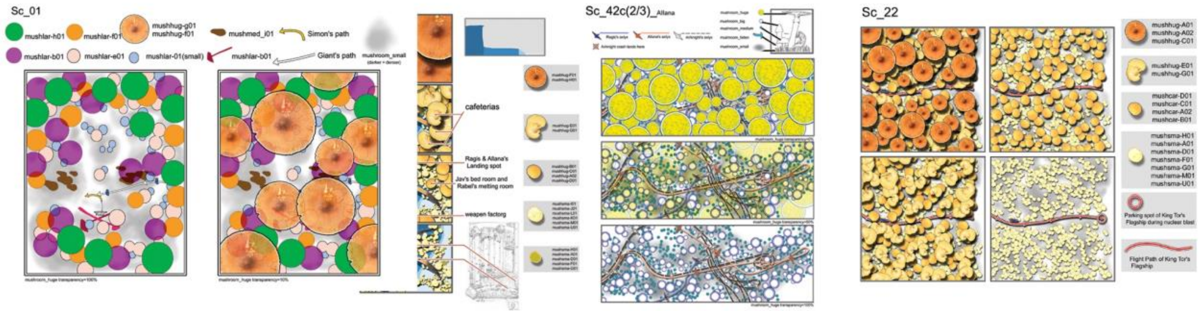


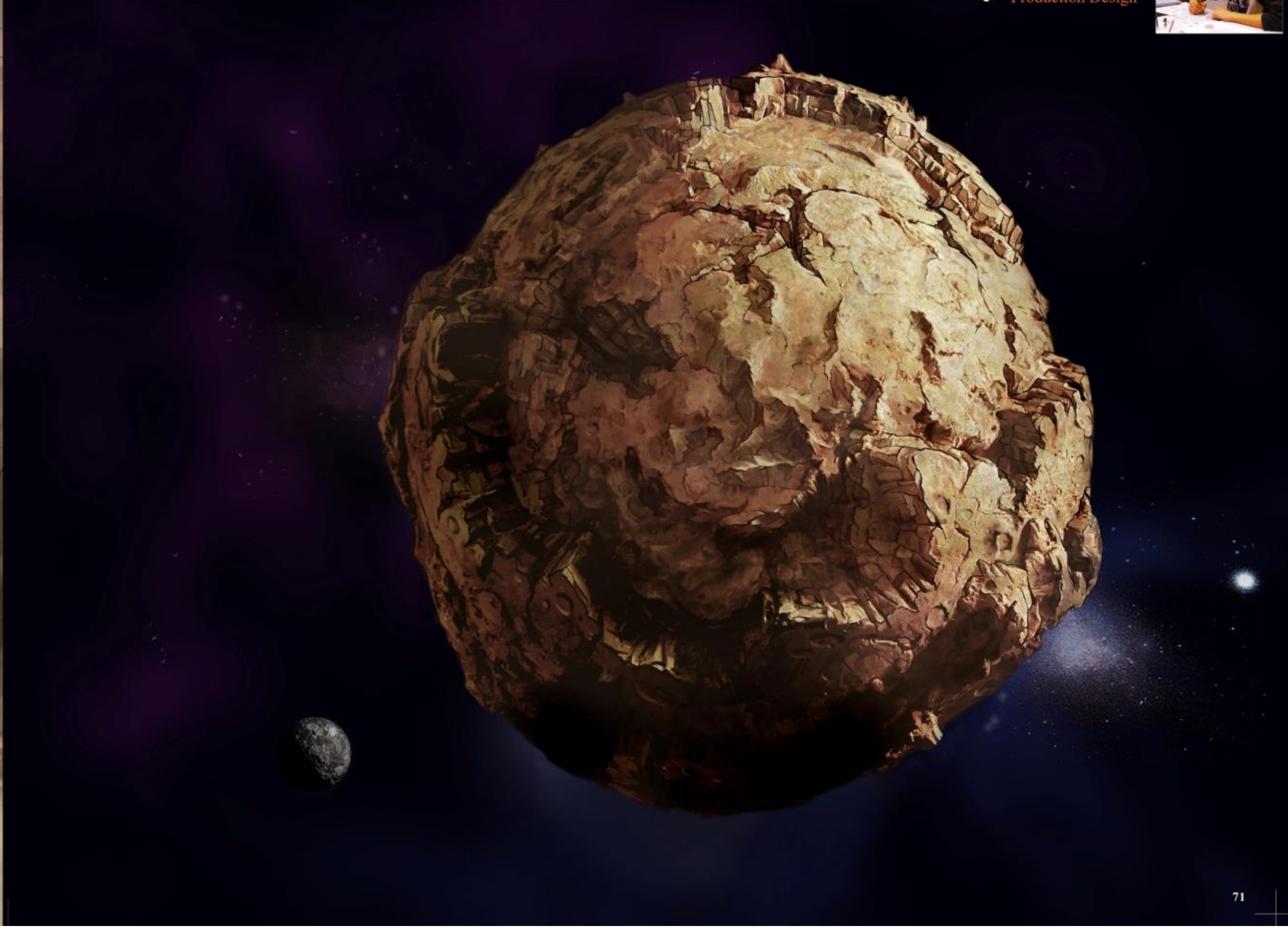


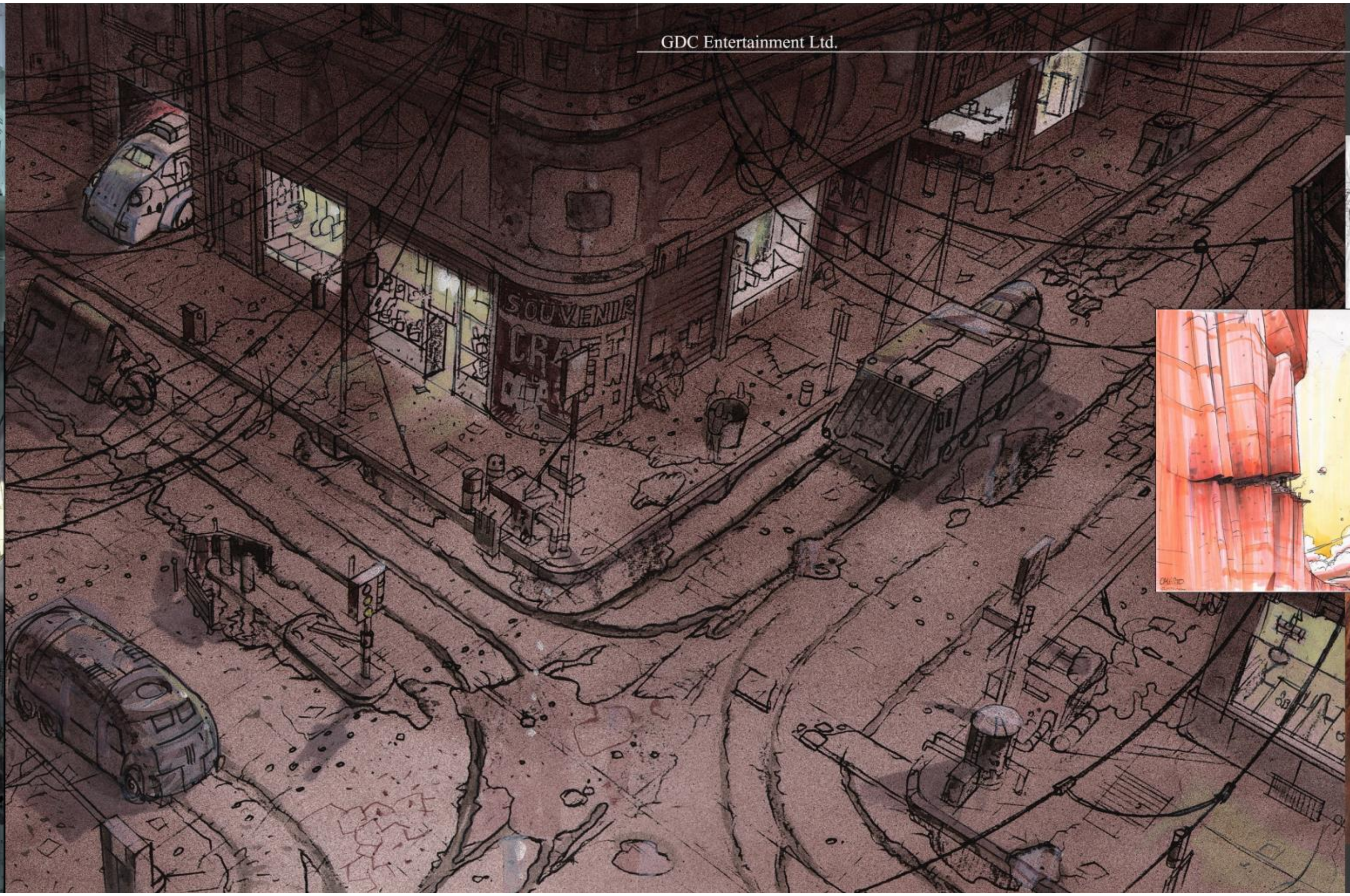



Sc_63A


THRU THE MOEBIUS STRIP
The Making of Thru the Moebius Strip


Sc_01
mushlar-h01
mushlar-f01
mushhug-g01
mushhug-f01
mushmed_i01
Simon's path
mushlar-b01
mushlar-e01
mushlar-01(small)
mushlar-b01
Giant's path
cafeterias
Ragis & Allana's Landing spot
Jov's bed room and Rabel's metting room
weapen factorg
Sc_42c(2/3)_Allana
Sc_22
mushhug-A01
mushhug-A02
mushhug-C01
mushhug-E01
mushhug-G01
Flight Path of King Tor's Flagship

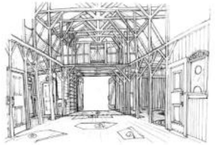


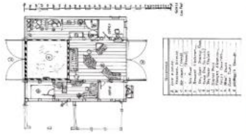

SOUVENIR
CRAFT

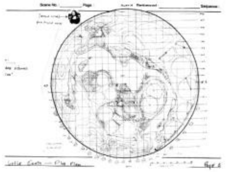

MY MUSIC
5
HOSTEL
Alex. 2008/09/11.

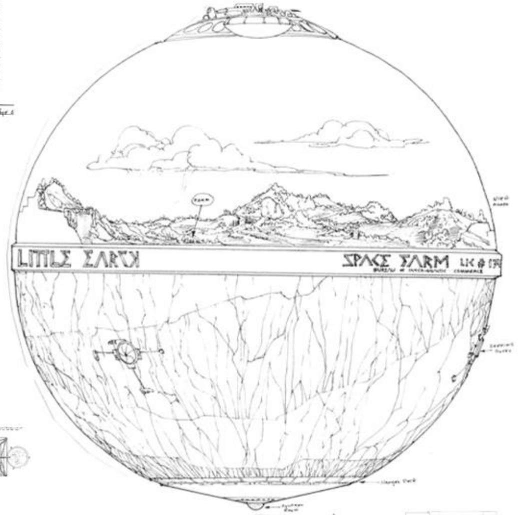

DRDROIDS

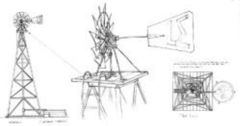

THE DIRTY SHAME

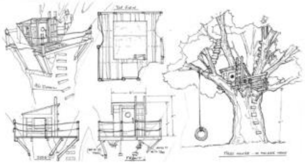


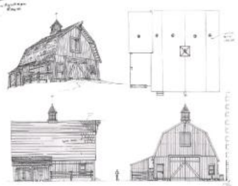


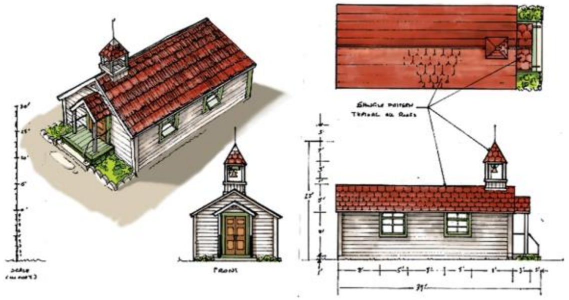


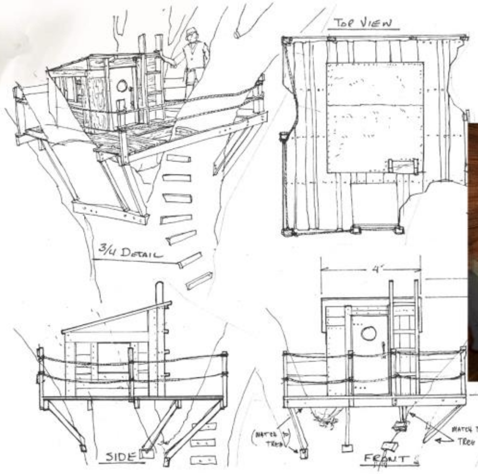

LITTLE EARTH
SPACE FARM

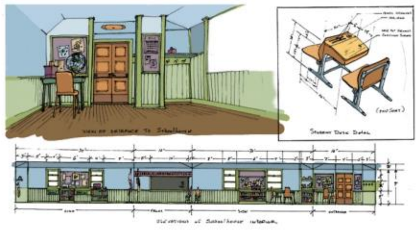




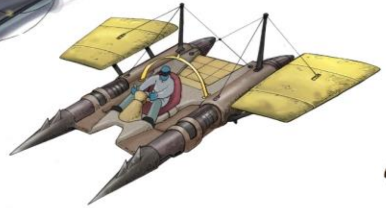





TOP VIEW
3/4 DETAIL
SIDE
FRONT

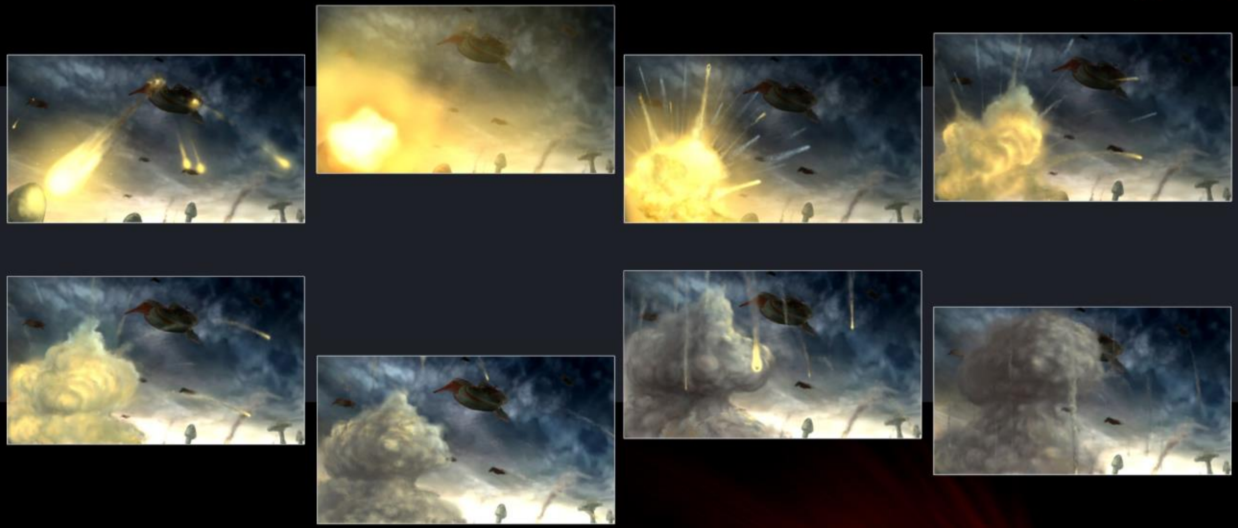



POLICE



THRU THE MOEBIUS STRIP

A color script provides the sample palettes of the major shots in the movie. By refering to it, various departments in the production pipeline, especially the texture and lighting department, control of the overall color style and the degree of warmth or coolness in the lighting.

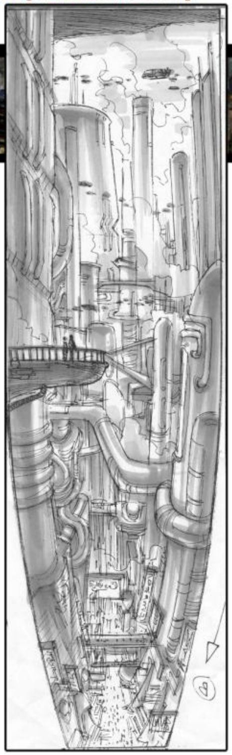


Storyboarding

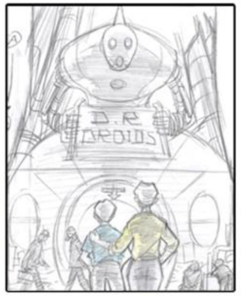
——Storyboarding is the process of turning the literal into the visual

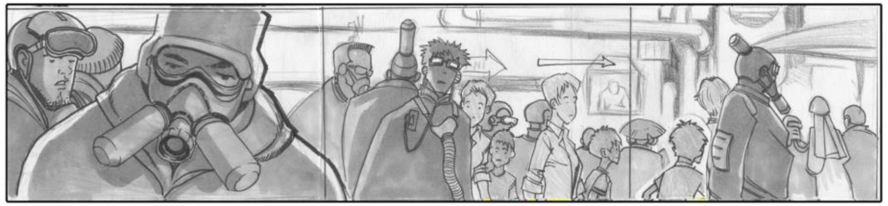
Storyboarding is indispensable in both 2D and 3D animation. In live action movies, advertisements and MTV's, storyboards are also used to different degrees of stylistic and professional requirements as far as the budget allows them, because for any kind of audio-video works, goods storyboards lay good foundations for the final products.

Visuals are intuitive; to shoot the movie with only a script is more difficult, because what is in a director's mind cannot go directly into the hundreds of minds which form the crew. A director needs a tool, a medium, to communicate ideas. Where should the cameraman put the camera in Shot 3 of Scene 5? What, when and where are the actors to perform so the camera may capture the director's intention? Is the lightning in this shot to be done by the lighting crew, or the special-effects crew?

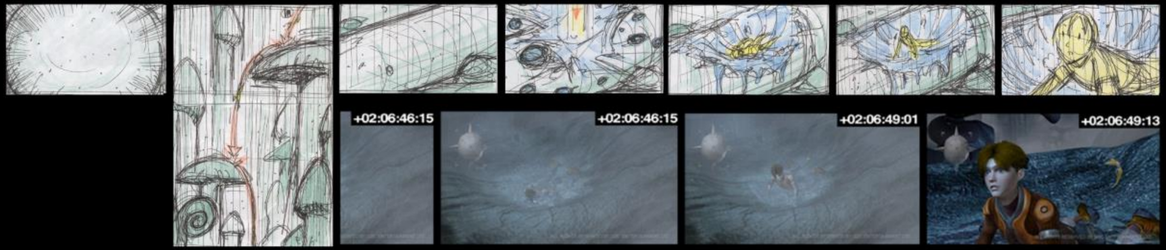


Since the final storyboards are for the uses of other production departements, the more detailed they are the better; the more information the production team can get, the closer the result will be to the director's intention.

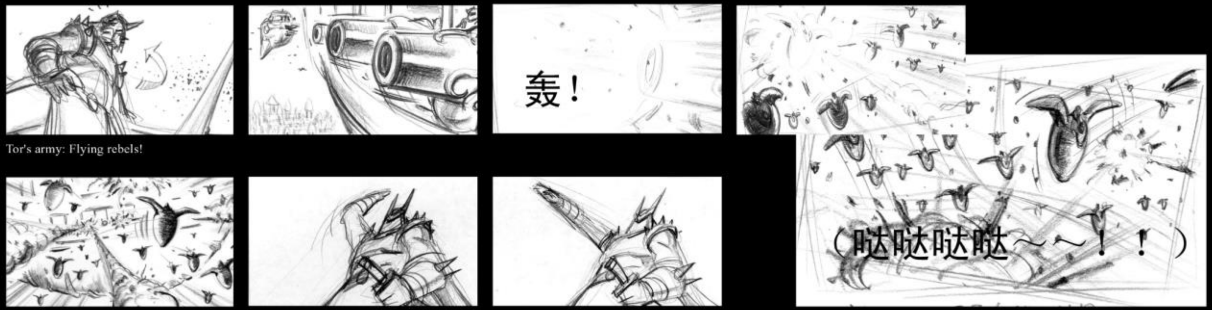




The characters' expression and poses need to be vivid so that animators may base upon them to create deeper performances.




(Bird's calls)

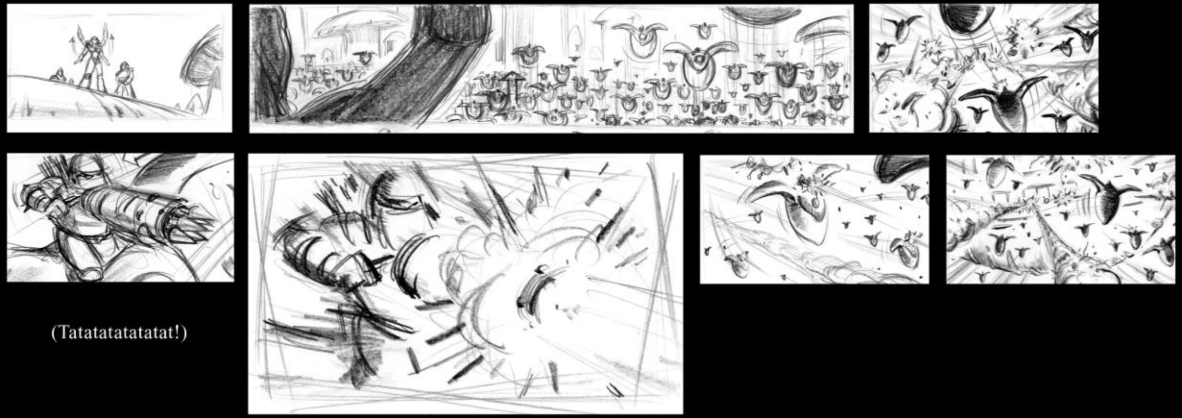


Tor's army: Flying rebels!

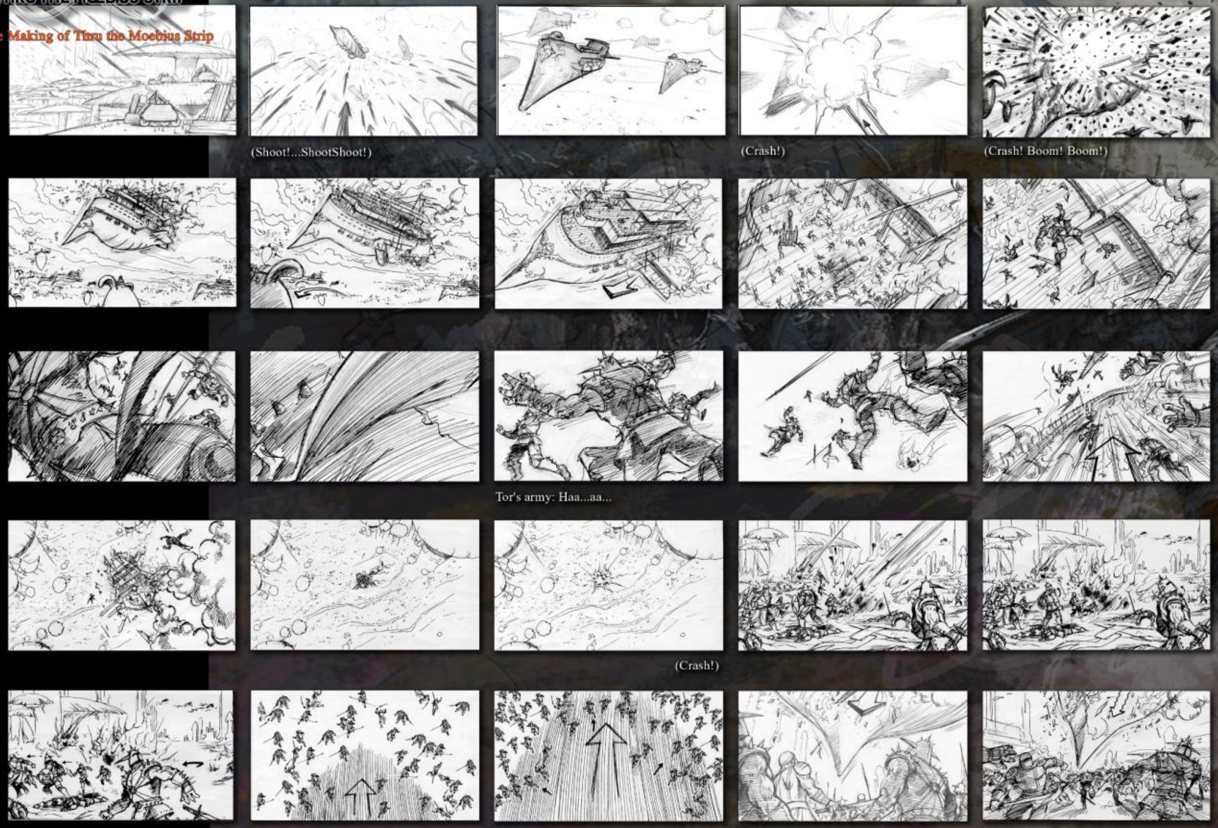

(Gag…GaGag...GaGaGag...!!)


(Tatatatatatatat!)

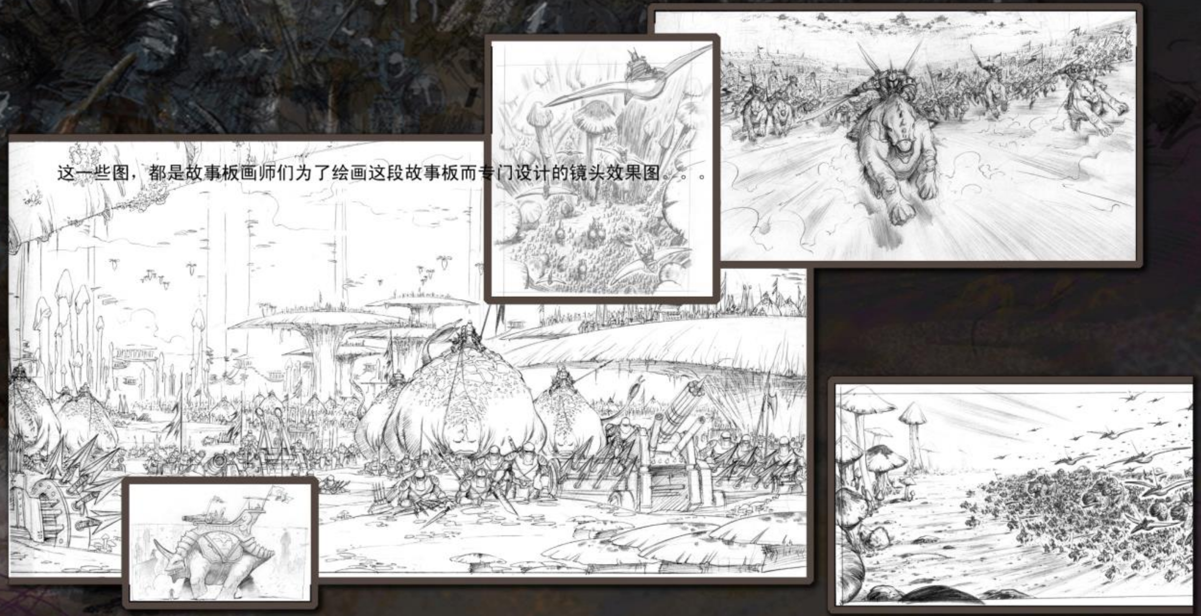

(Crash...!)
(GaGag...Gag…)


(Tatatatatatatat!)


(Crash! Boom!)
(Woosh!)

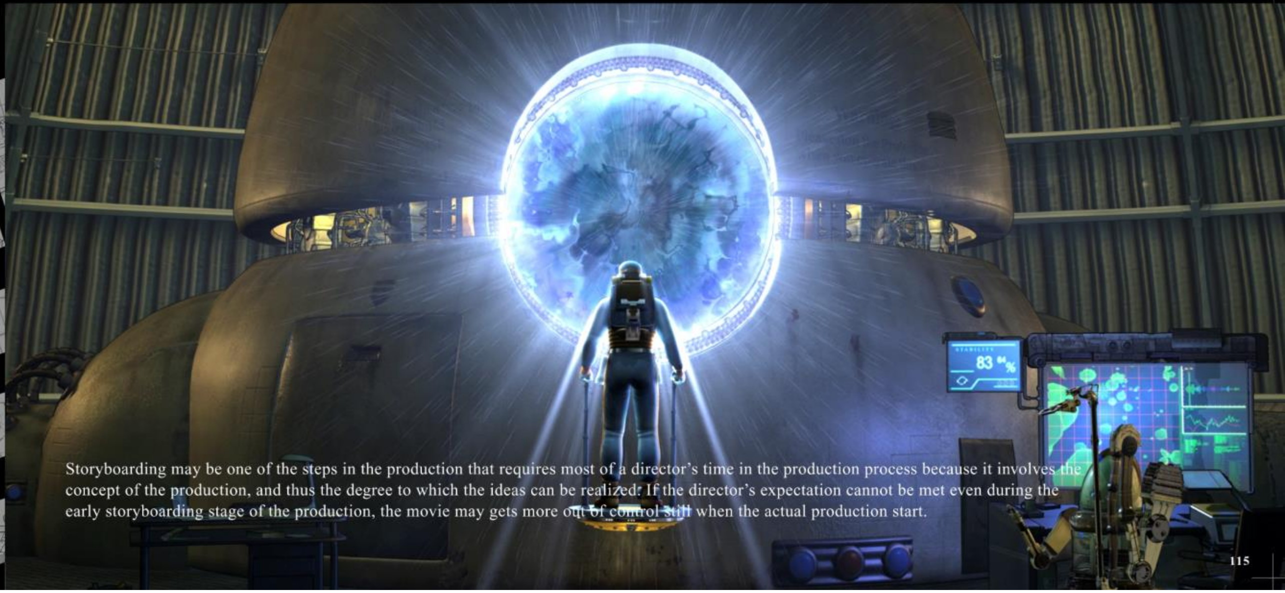


这一些图，都是故事板画师们为了绘画这段故事板而专门设计的镜头效果图。。。

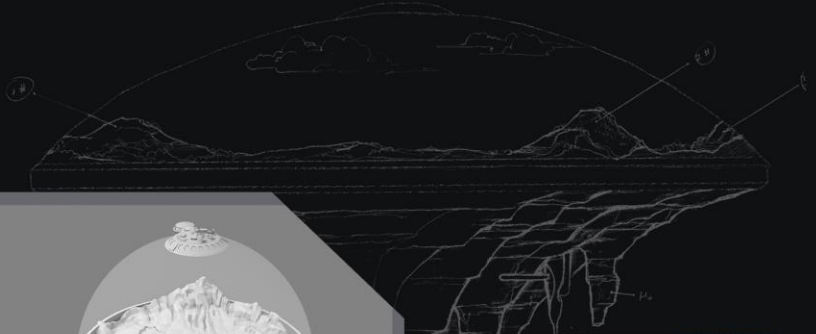


Storyboarding for Movies

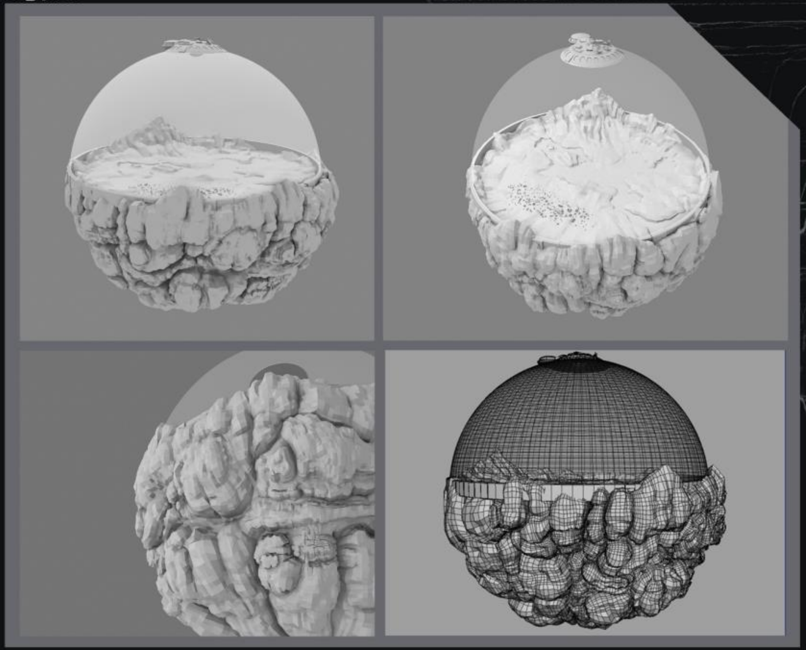
Storyboards have been used in movie production since last 1930's for the simple purpose of showing what each shot requires, a blueprint for the production that allows everyone to get a clear basis for production work. It explicitly describes a shot's visible elements such as its contents and timing, as well as camera angle and movement. When there is any argument during production, storyboard can help coordinate the different opinions. Storyboards give the moviemakers a point of reference for production and the exchange of ideas.

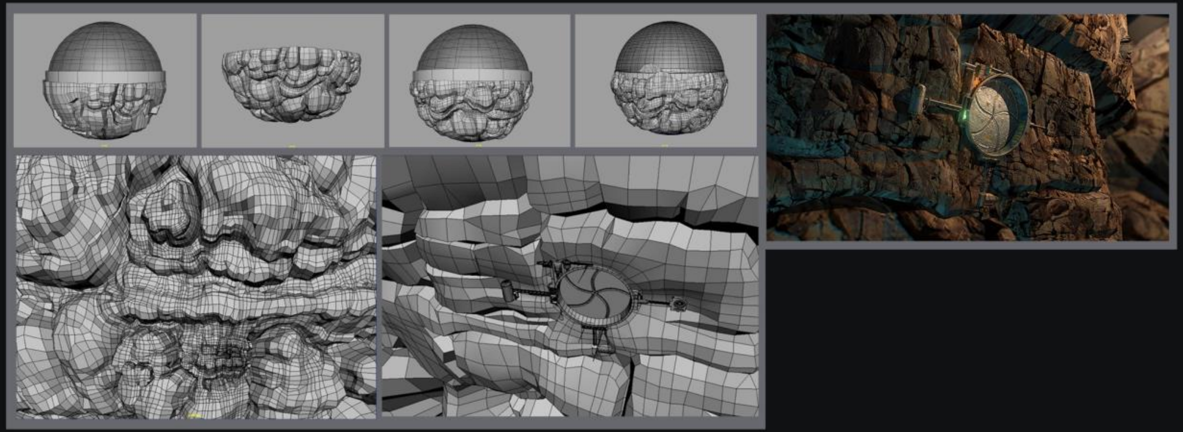


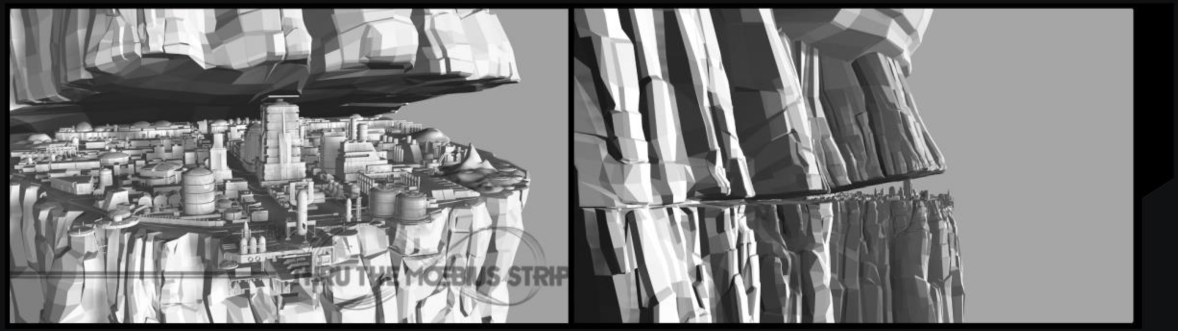
Storyboarding may be one of the steps in the production that requires most of a director's time in the production process because it involves the concept of the production, and thus the degree to which the ideas can be realized. If the director's expectation cannot be met even during the early storyboarding stage of the production, the movie may gets more out of control still when the actual production start.

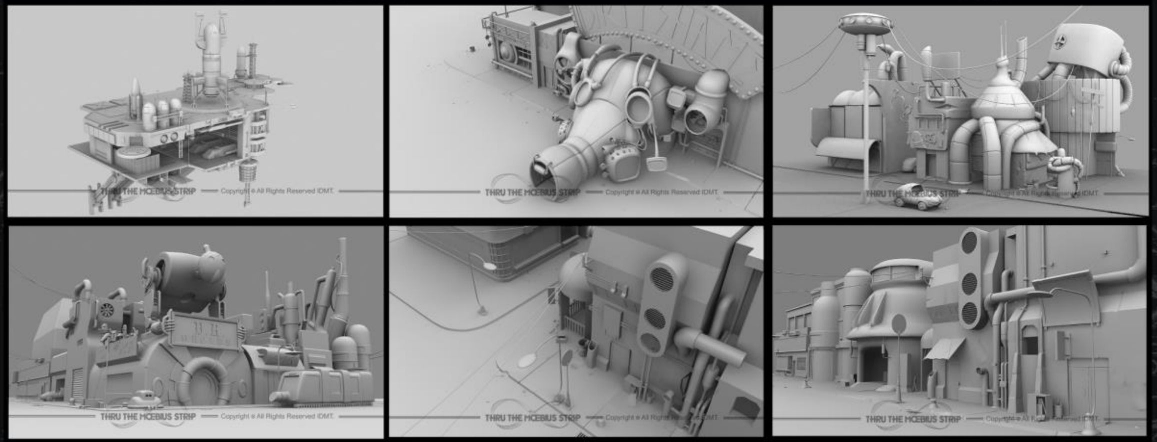


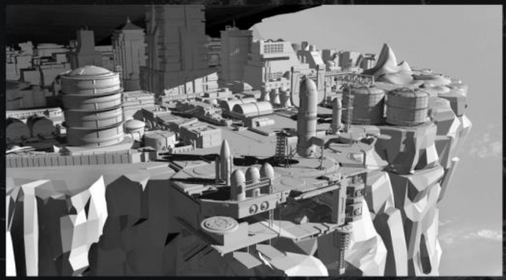
Bio_sphere

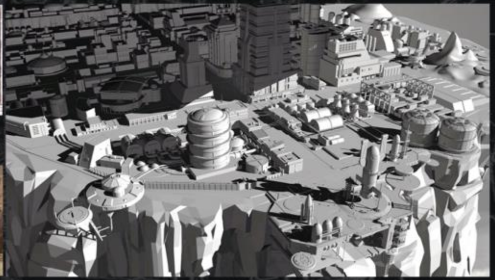


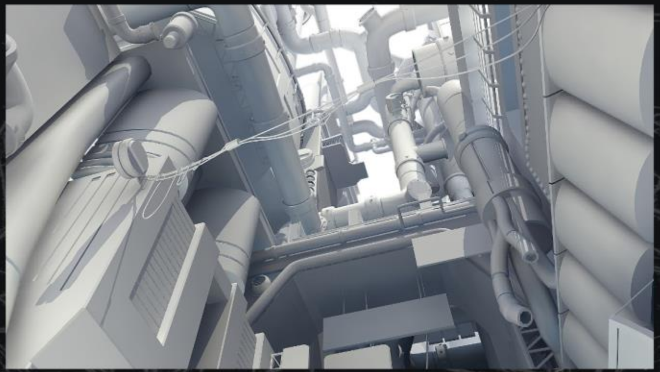


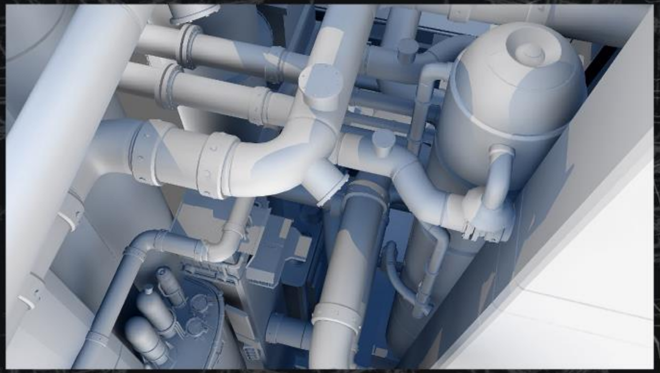


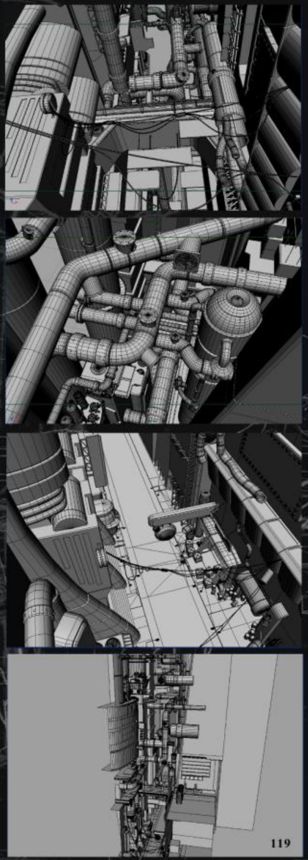




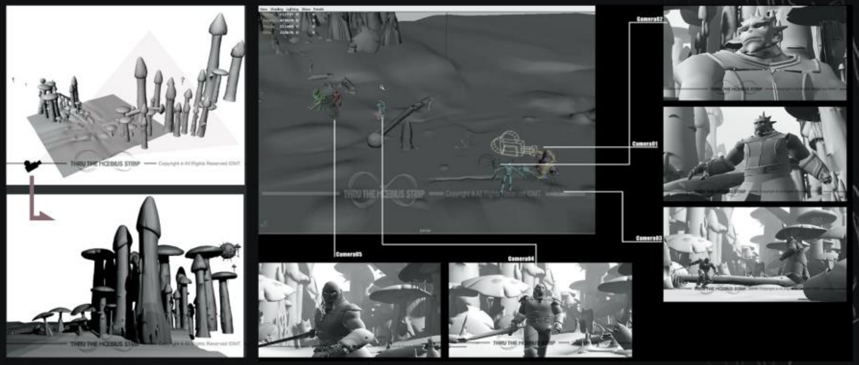


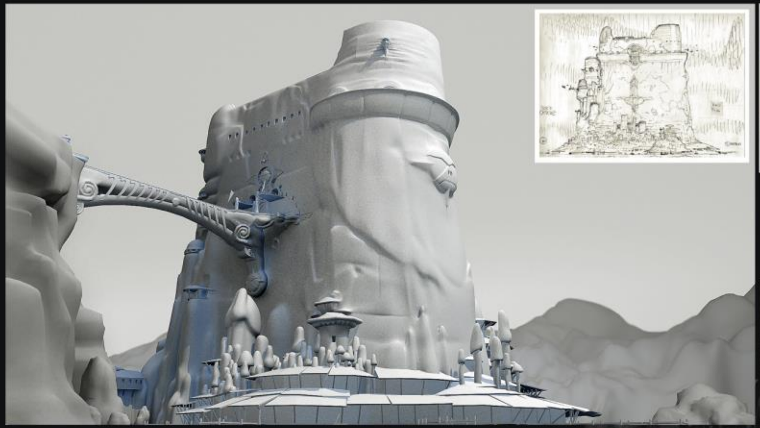


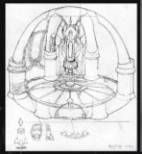
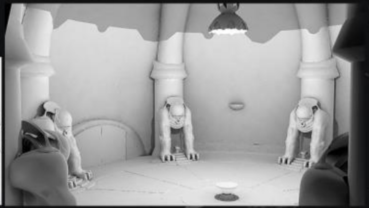


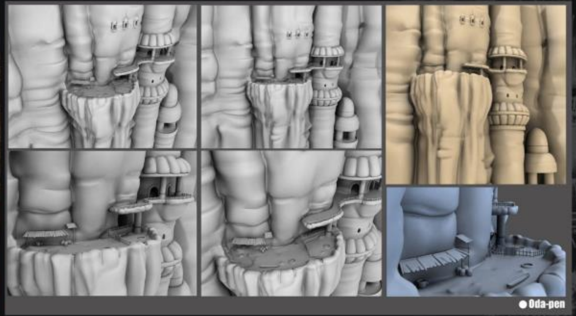


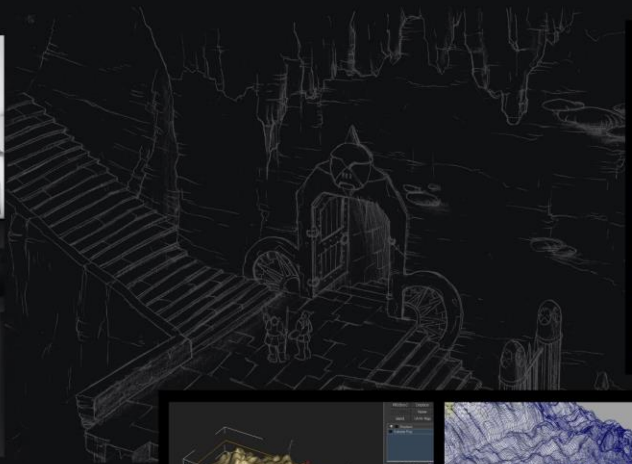
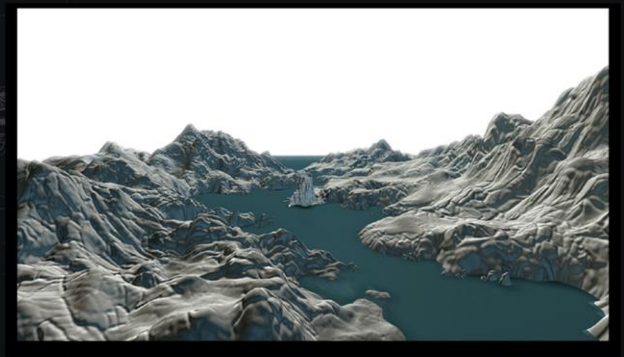
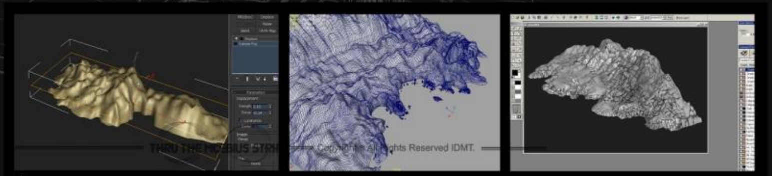
Mushroom forest







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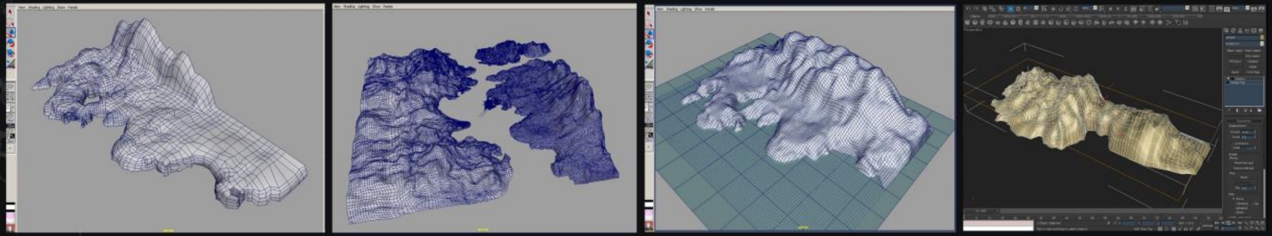

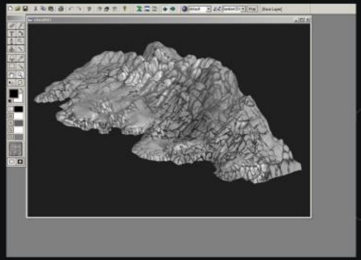

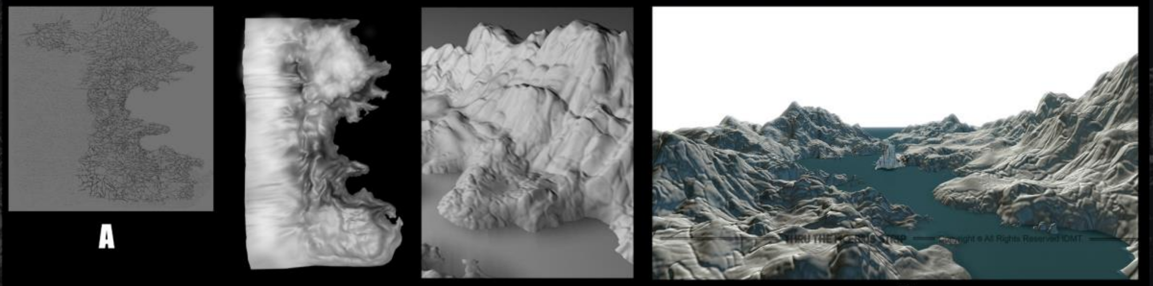

A

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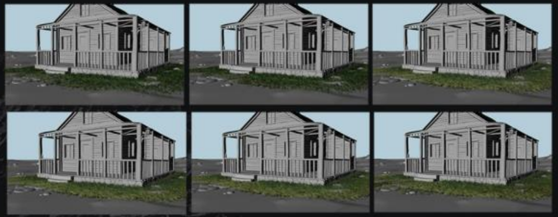
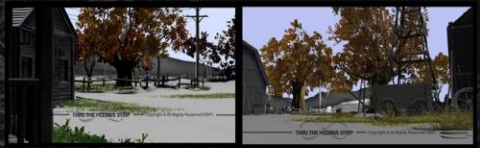
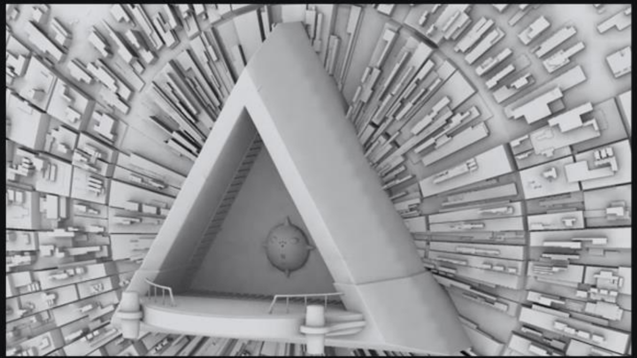
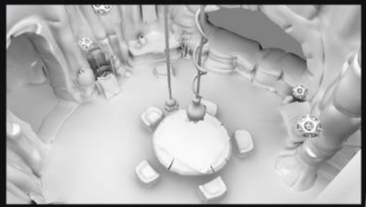


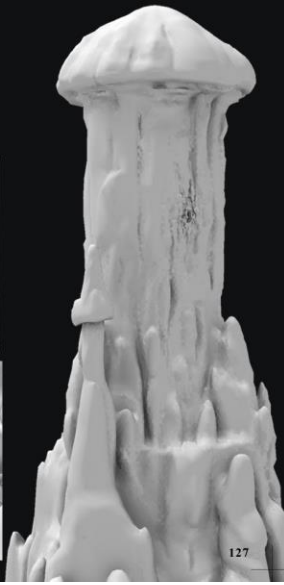


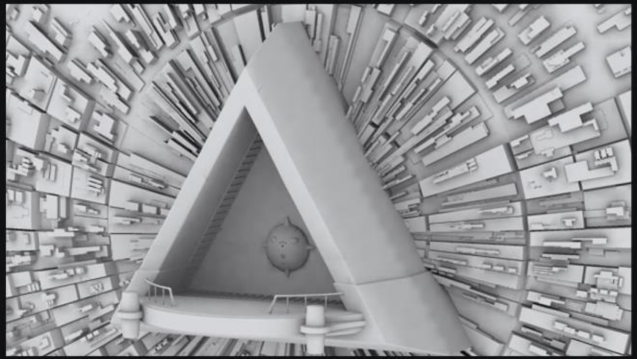
painteffect test 03

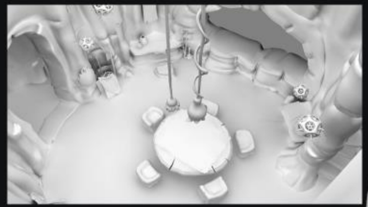
painteffect test02

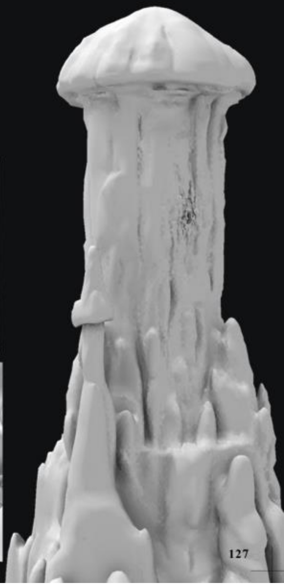


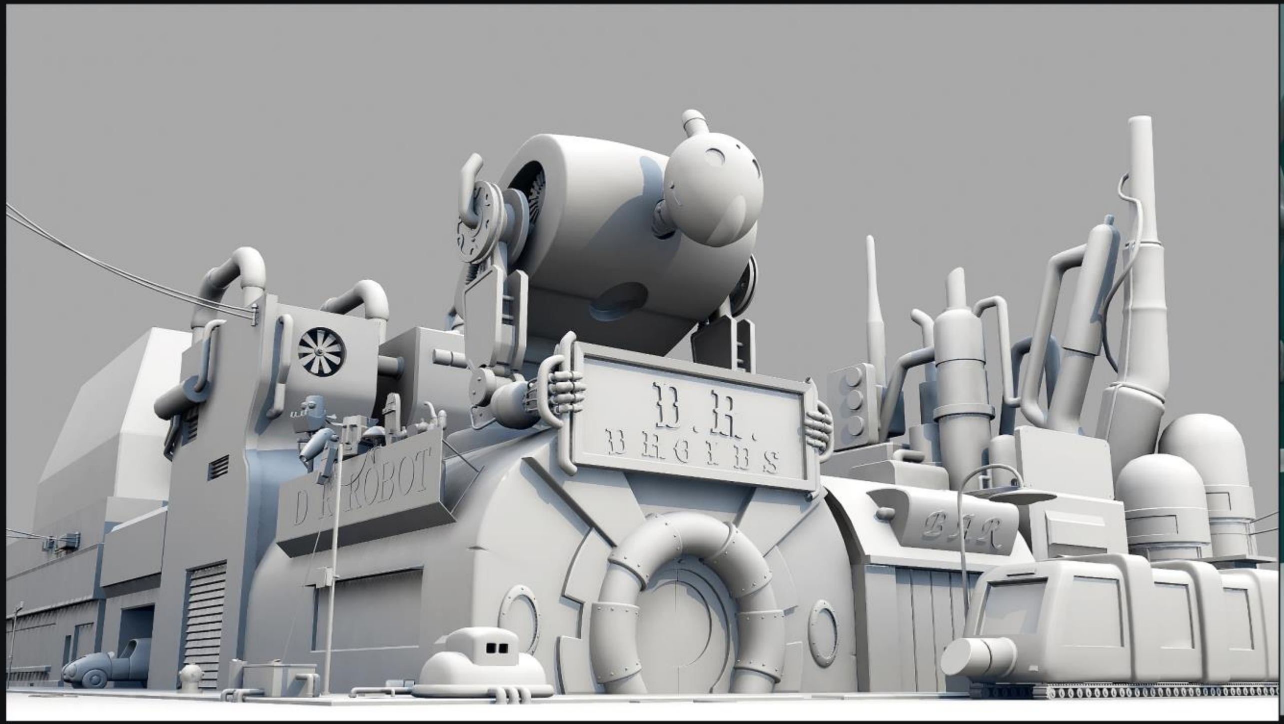


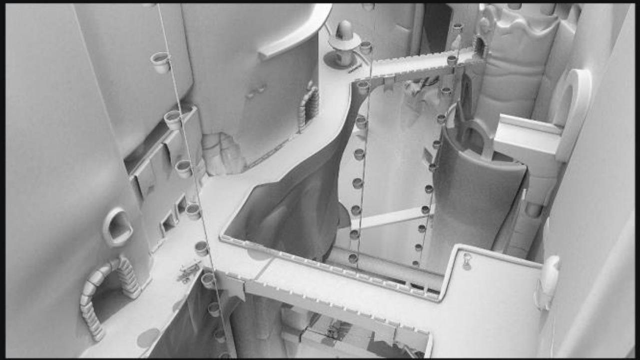


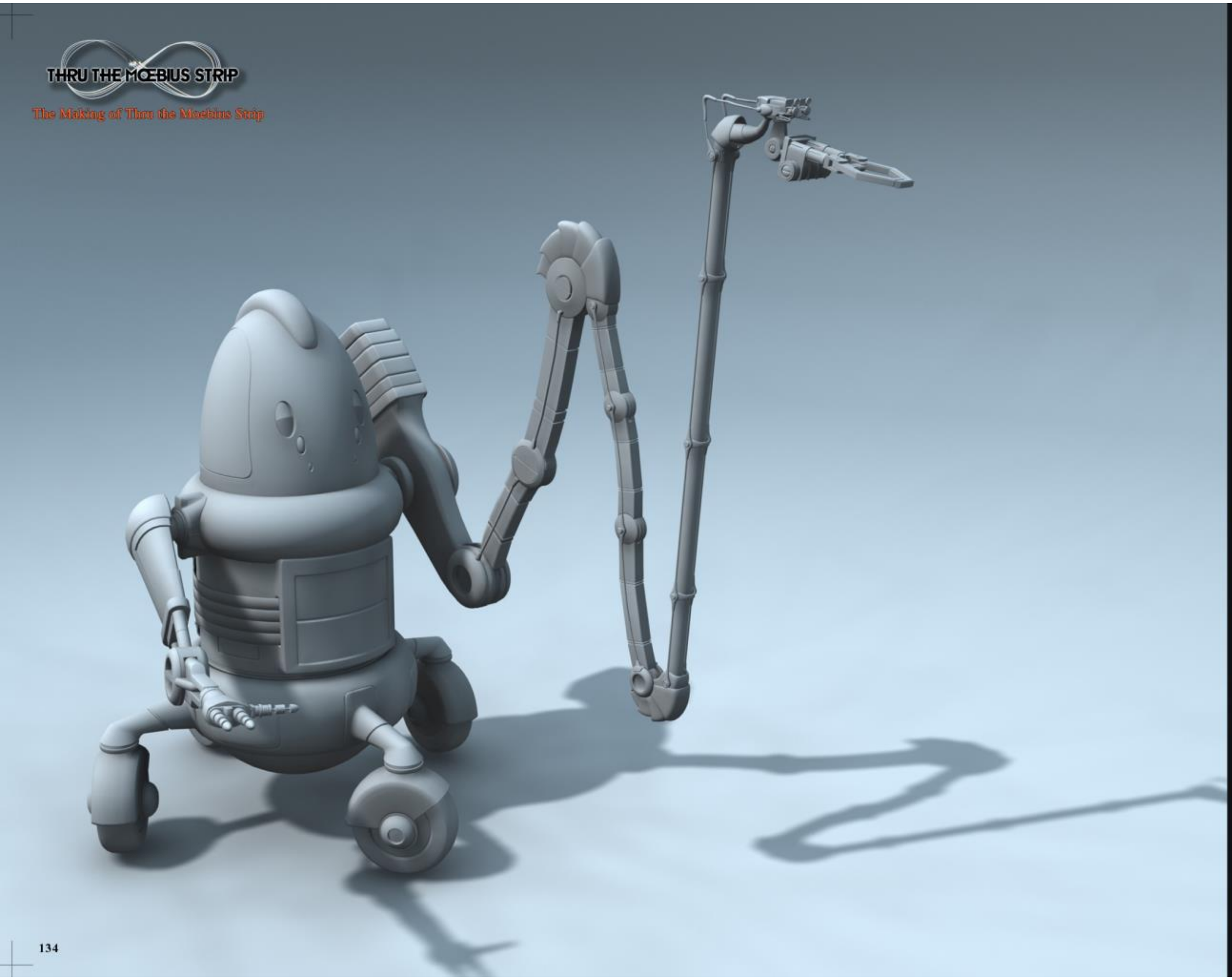







B. R.
BAR





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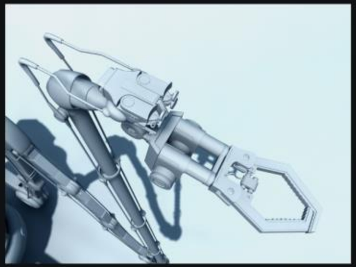
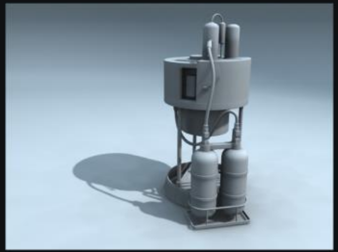
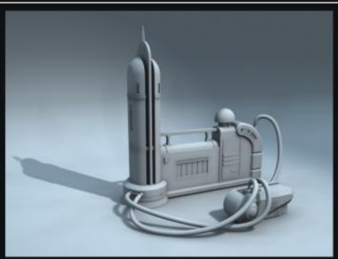
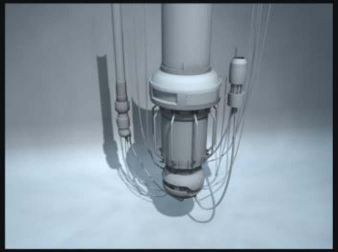
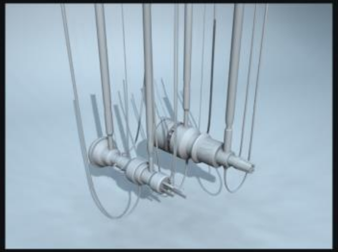
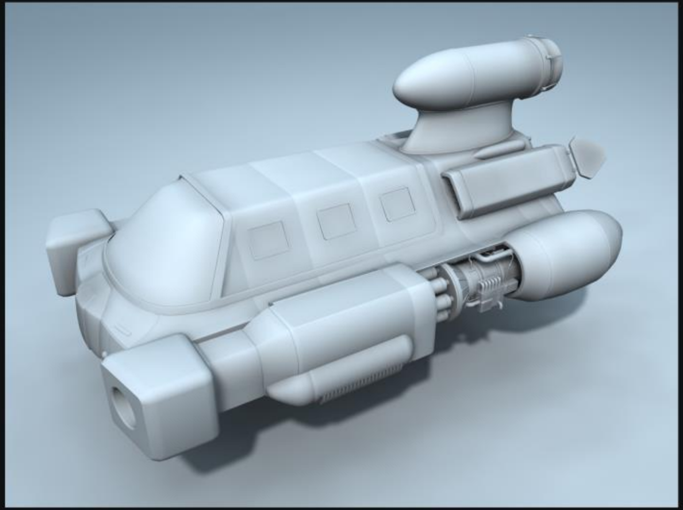


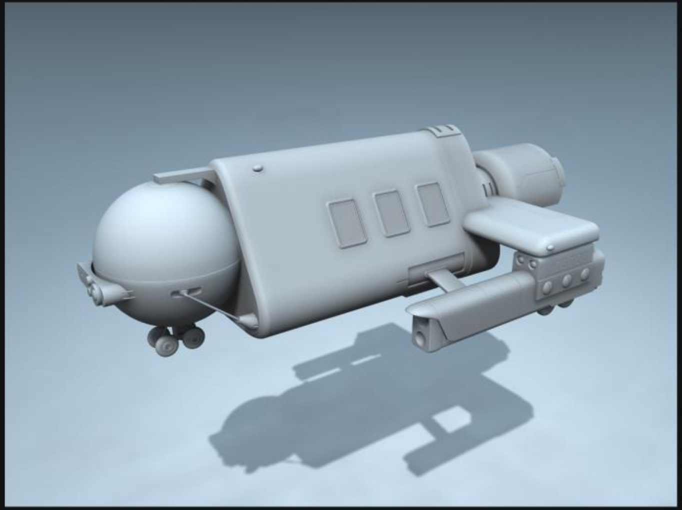


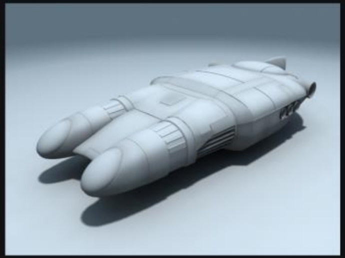


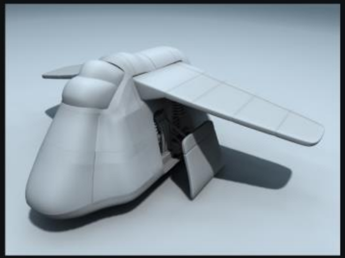


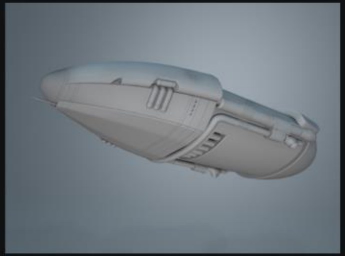


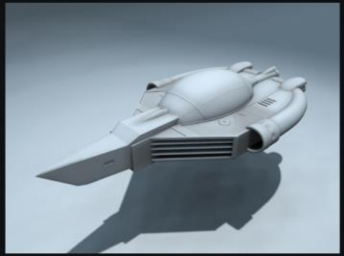


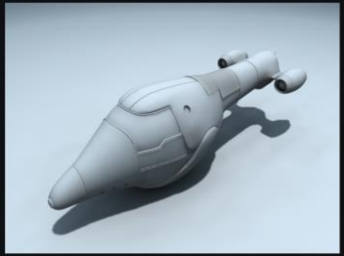


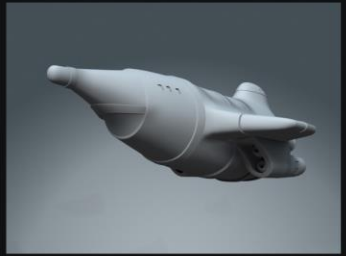


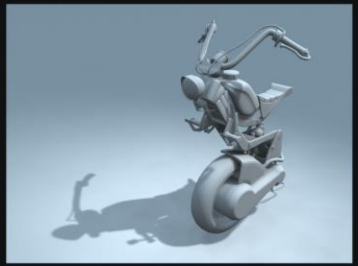
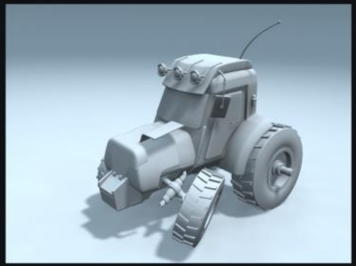


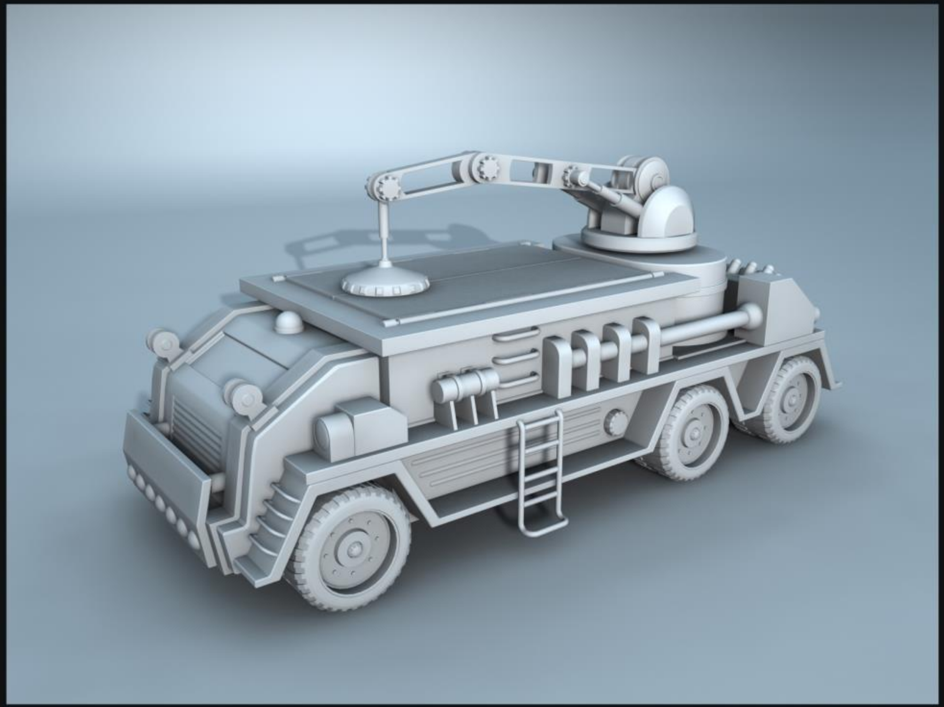
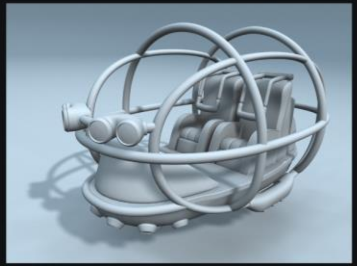
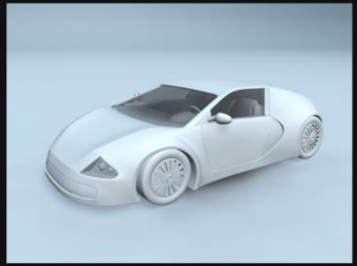
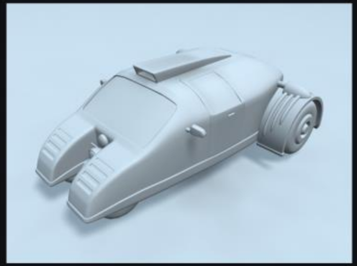


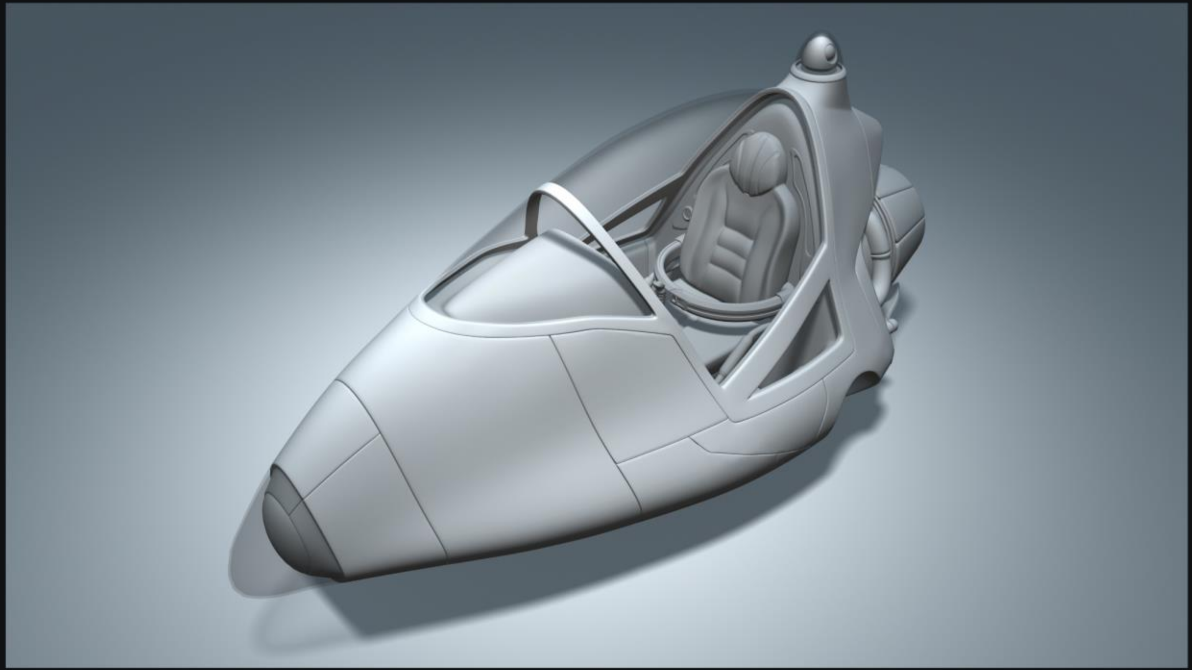




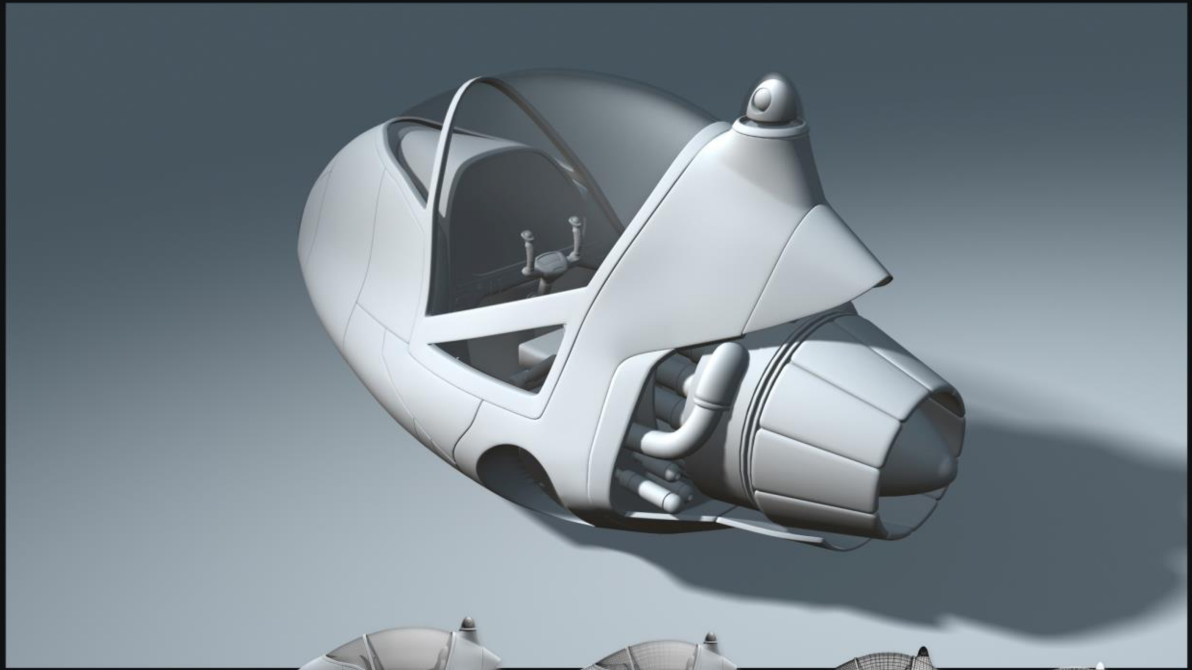


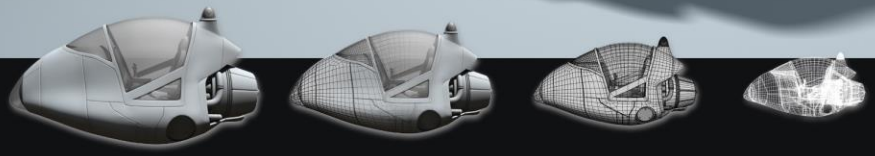



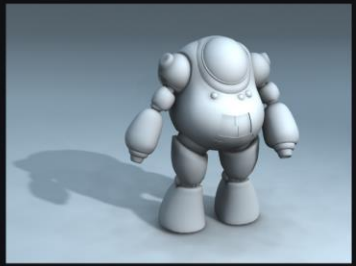


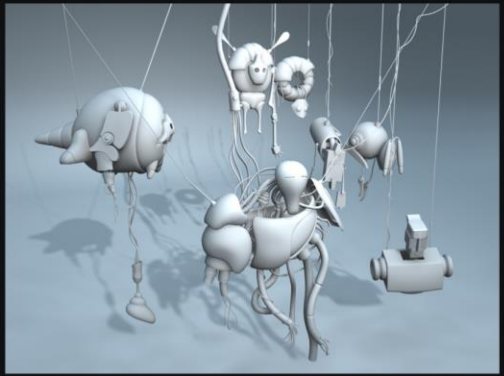
Policeship

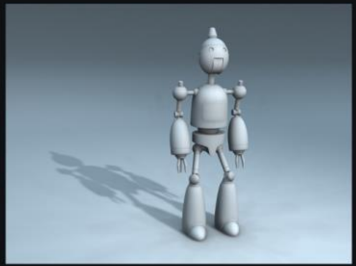
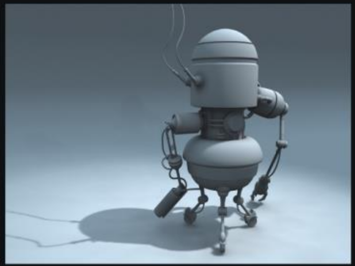
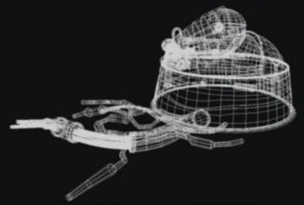


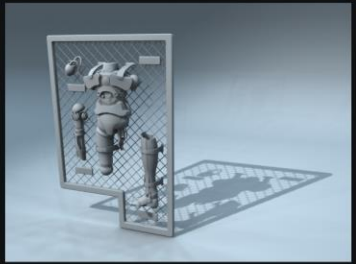


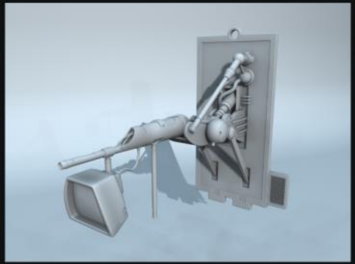






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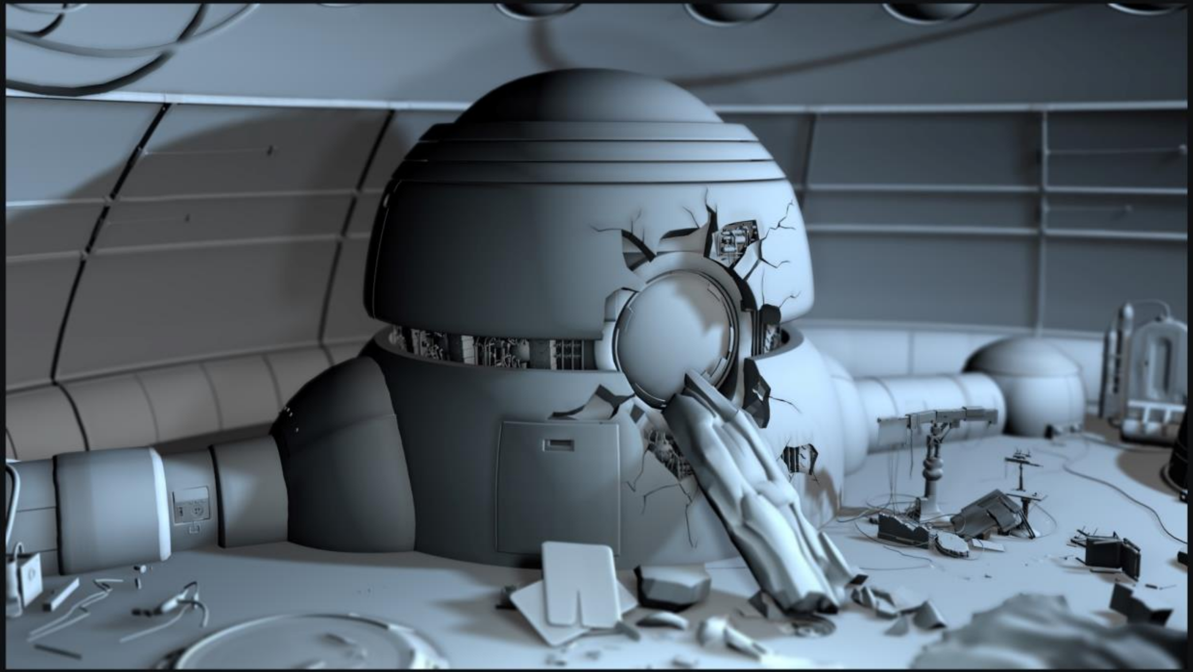

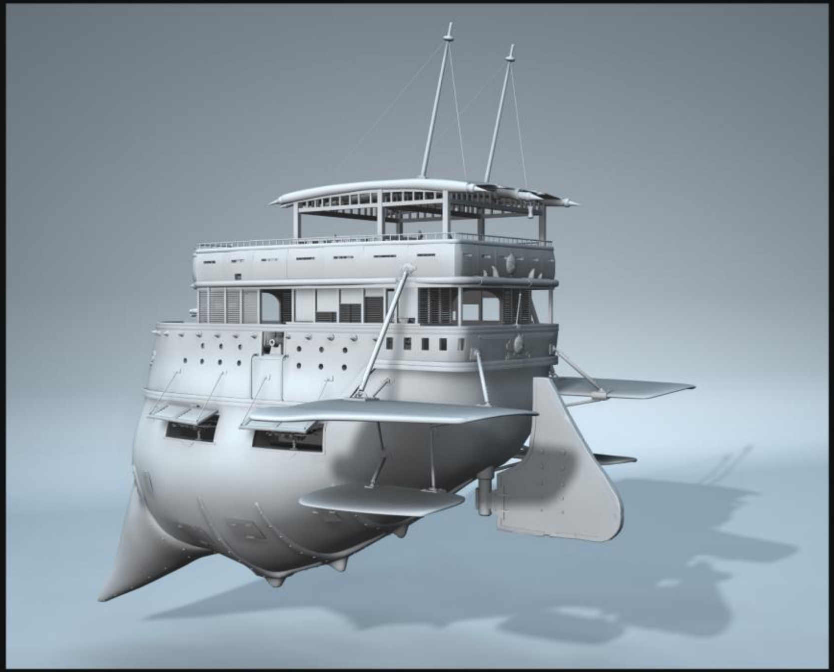

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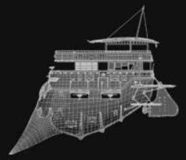
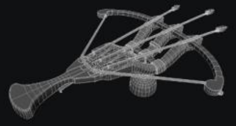
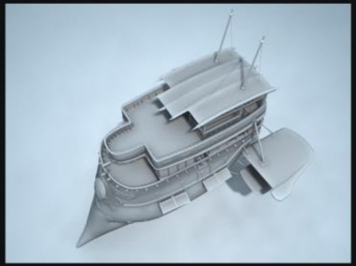
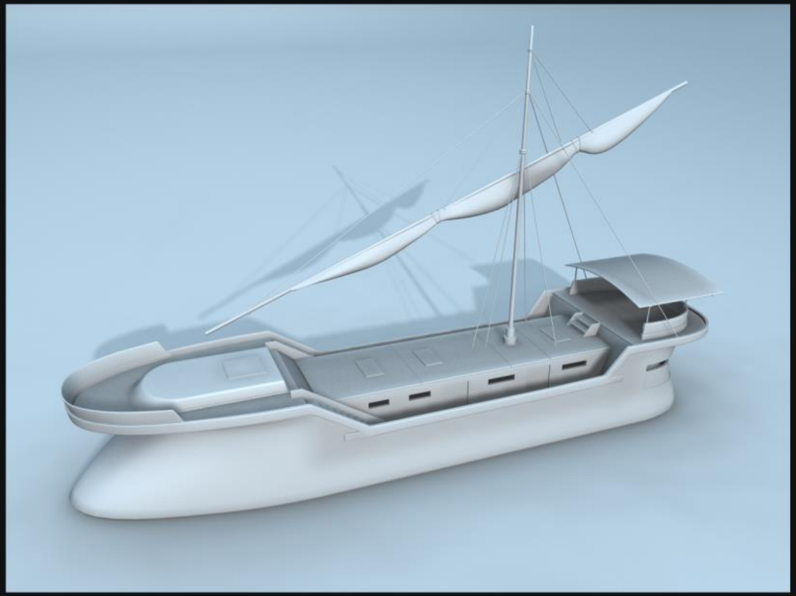
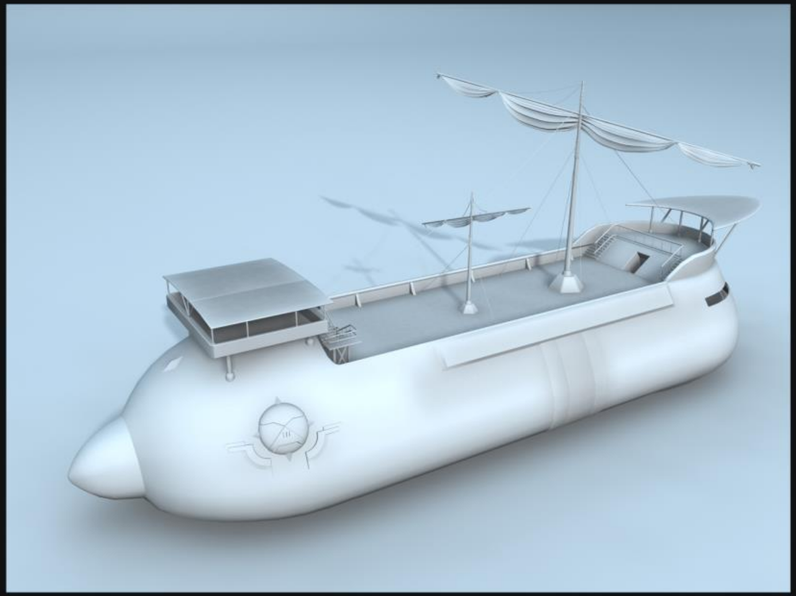
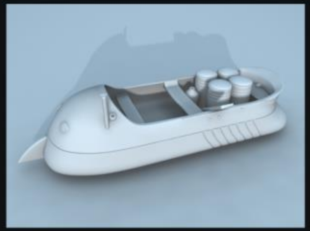


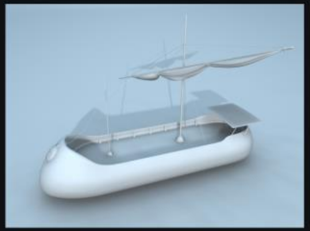


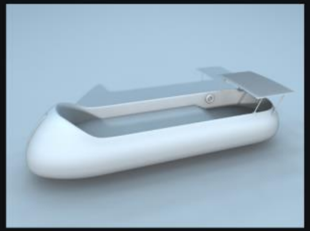


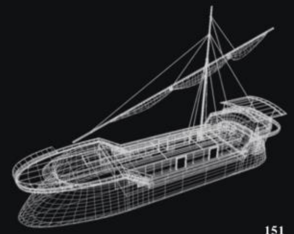


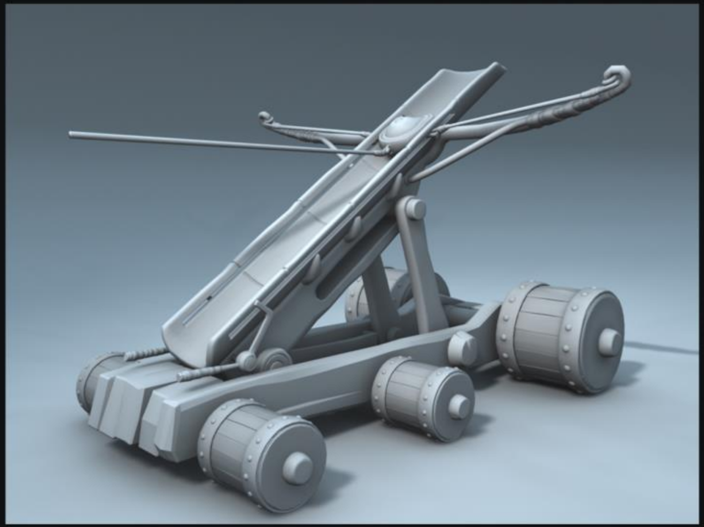


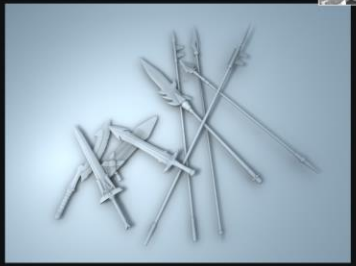


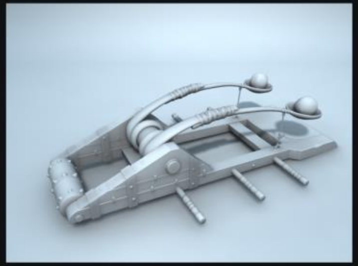


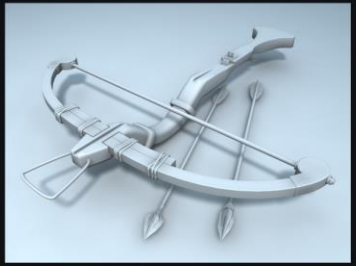


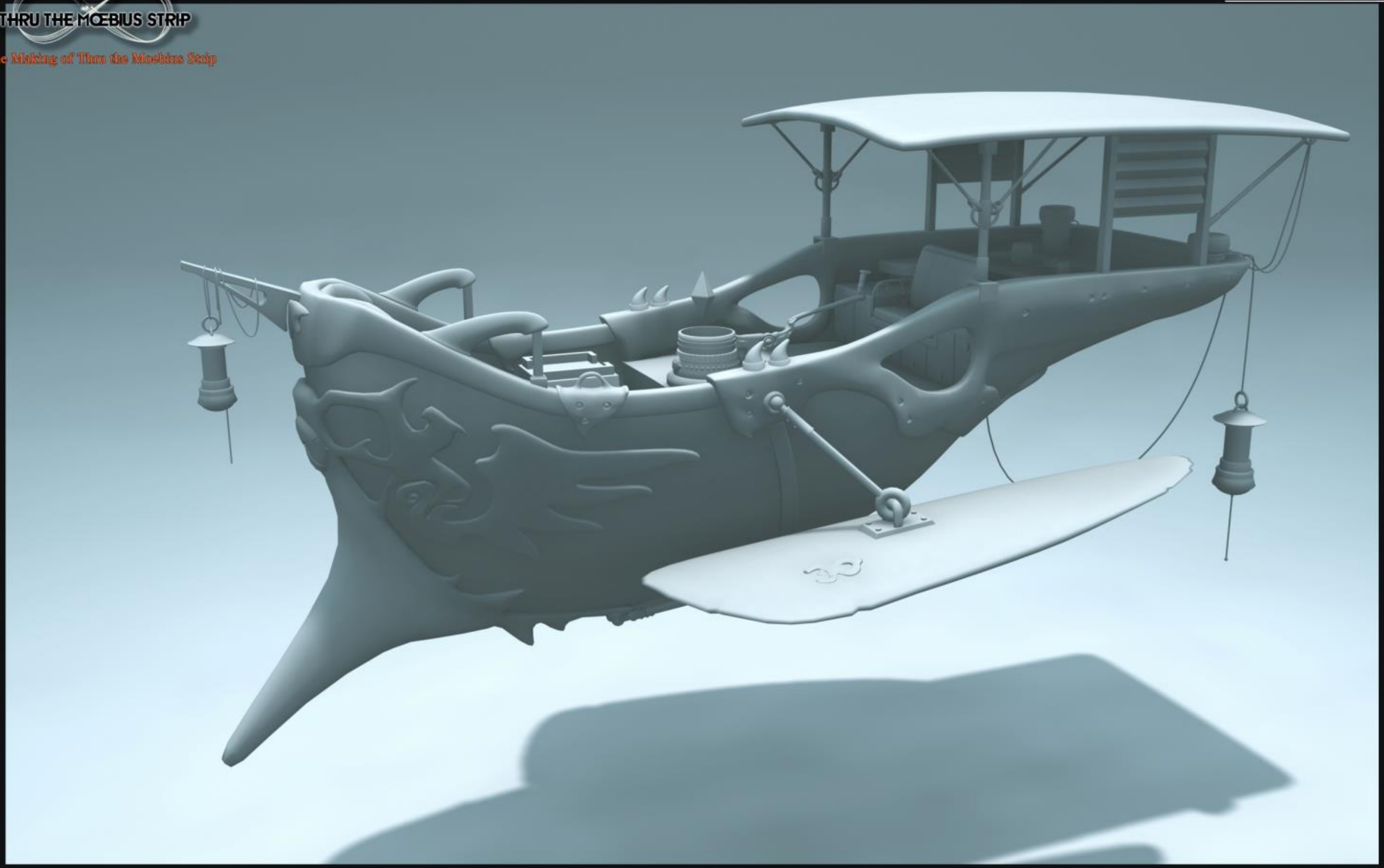


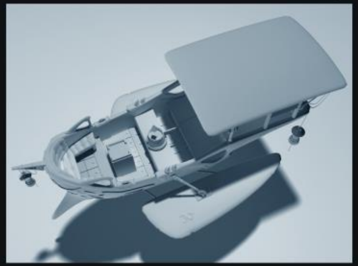


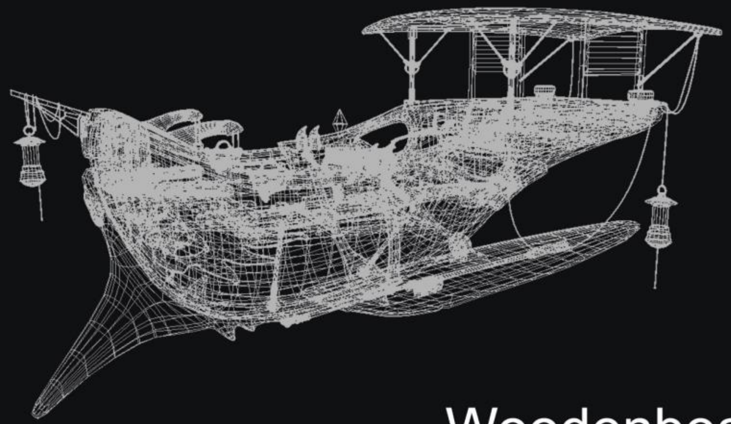




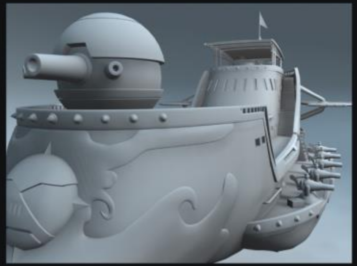


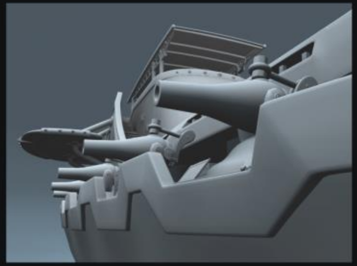


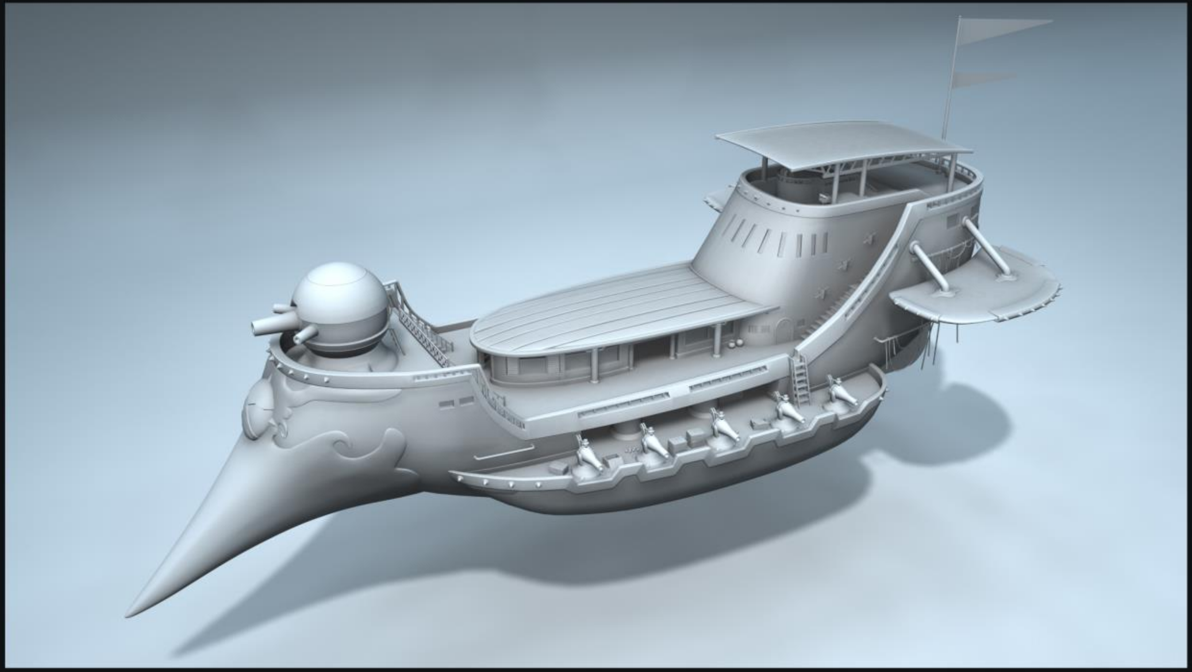




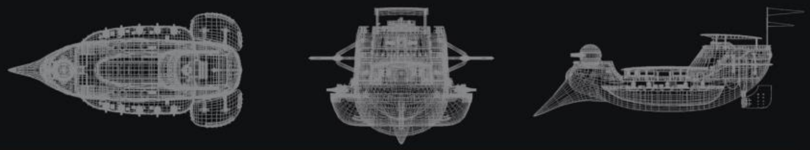
Woodenboat

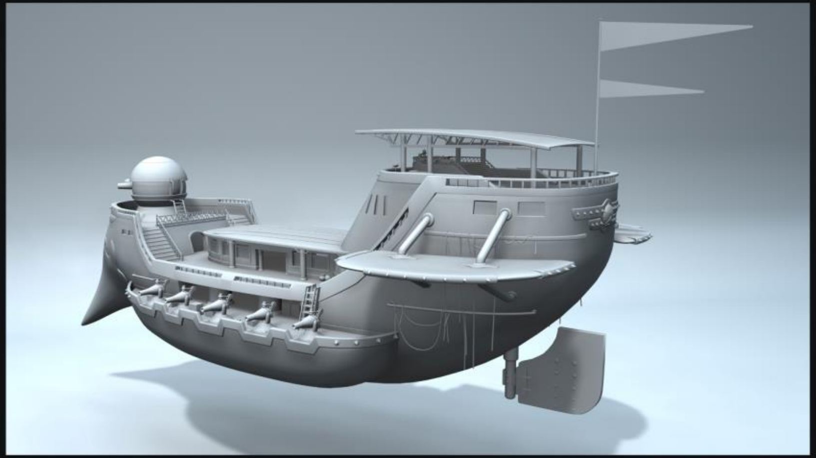




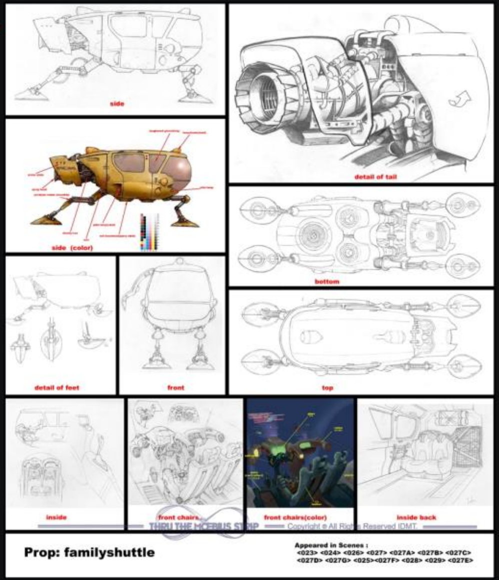


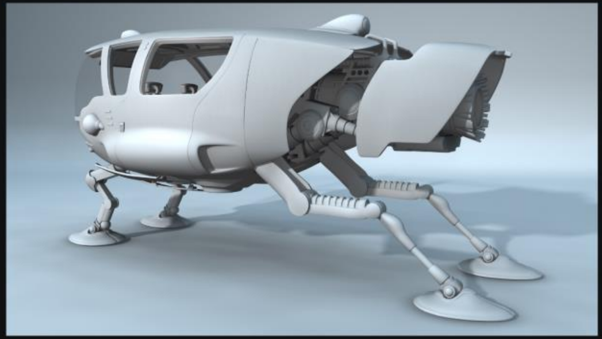
Battleship是最大的外星戰艦，艦載數門重炮，Kingtor想以此徹底消滅義軍勢力。





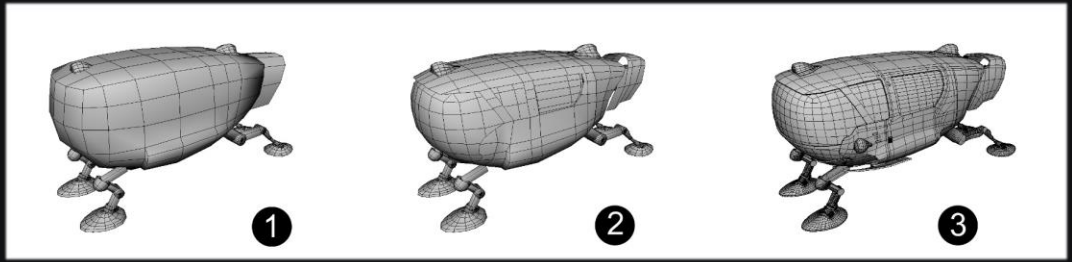
Battleship

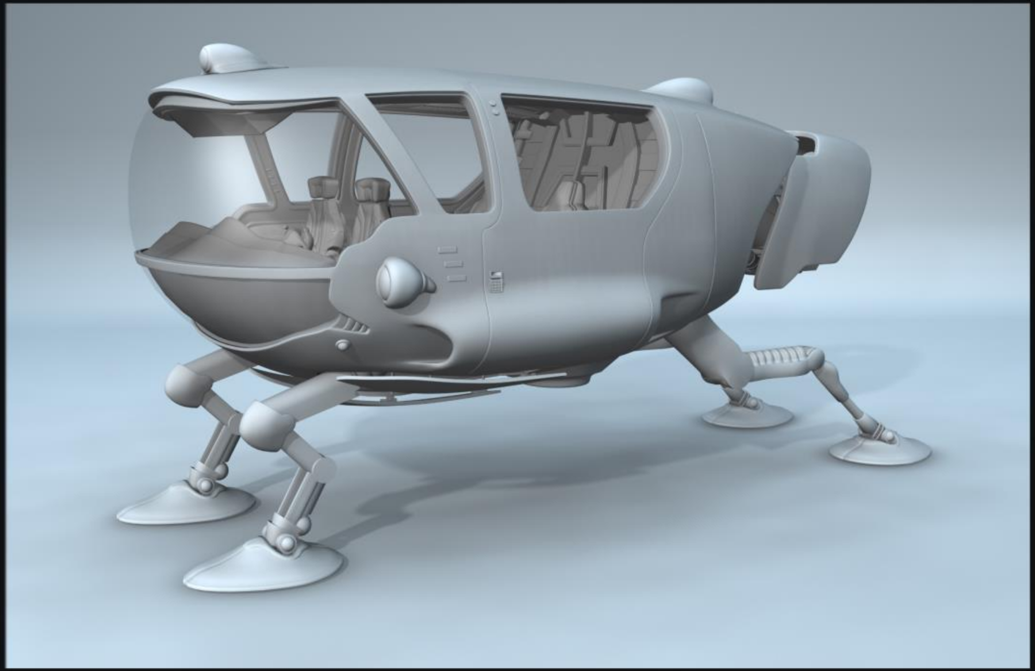


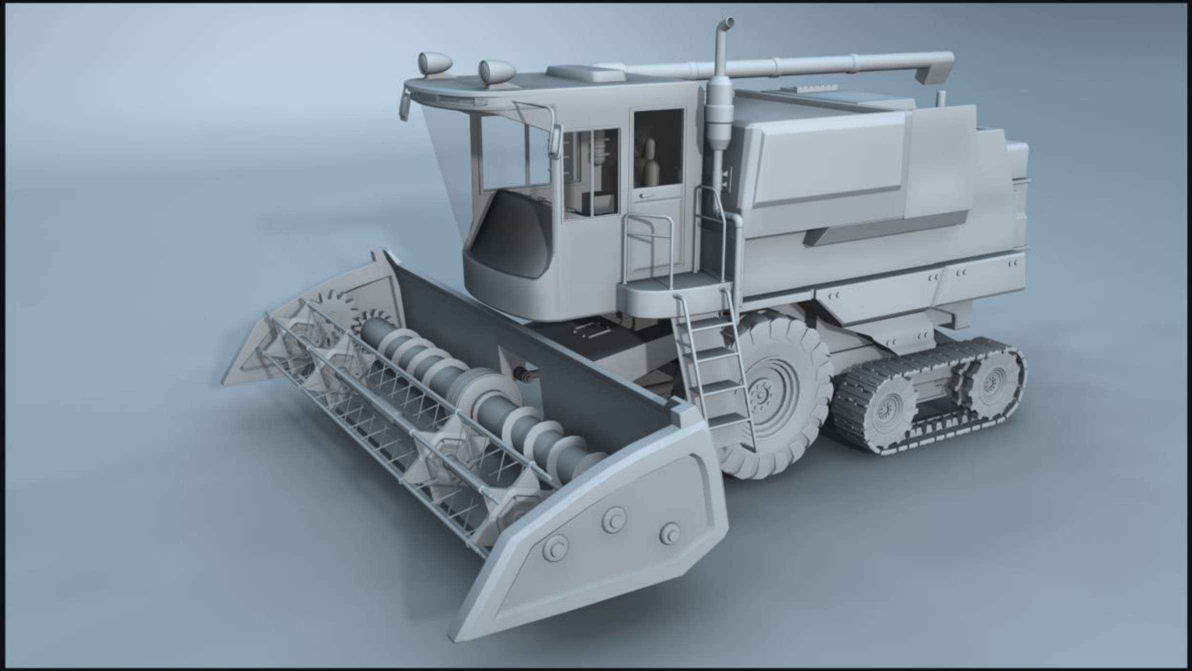


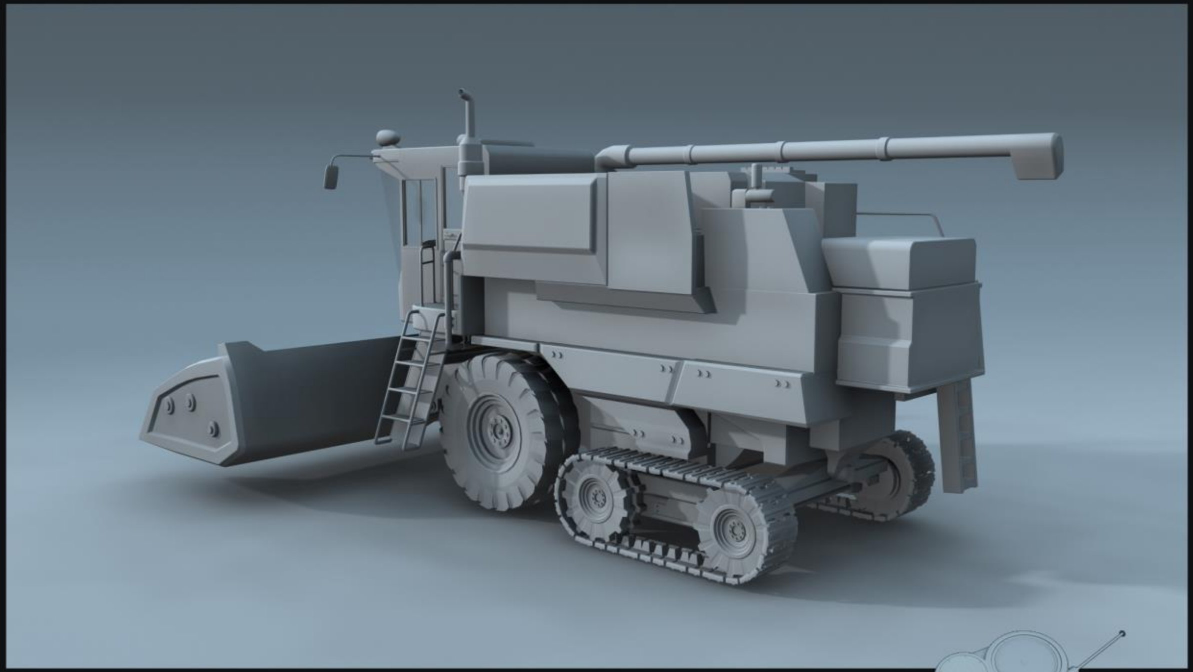
Familyshuttle

所有模型的制作都是從粗略到精細，從整體到局部，再從局部回到整體的過程，
Famliyshuttle的制作也不例外。

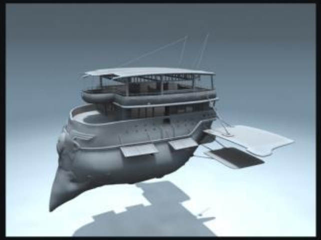


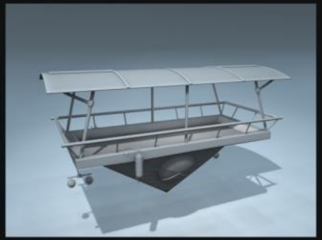


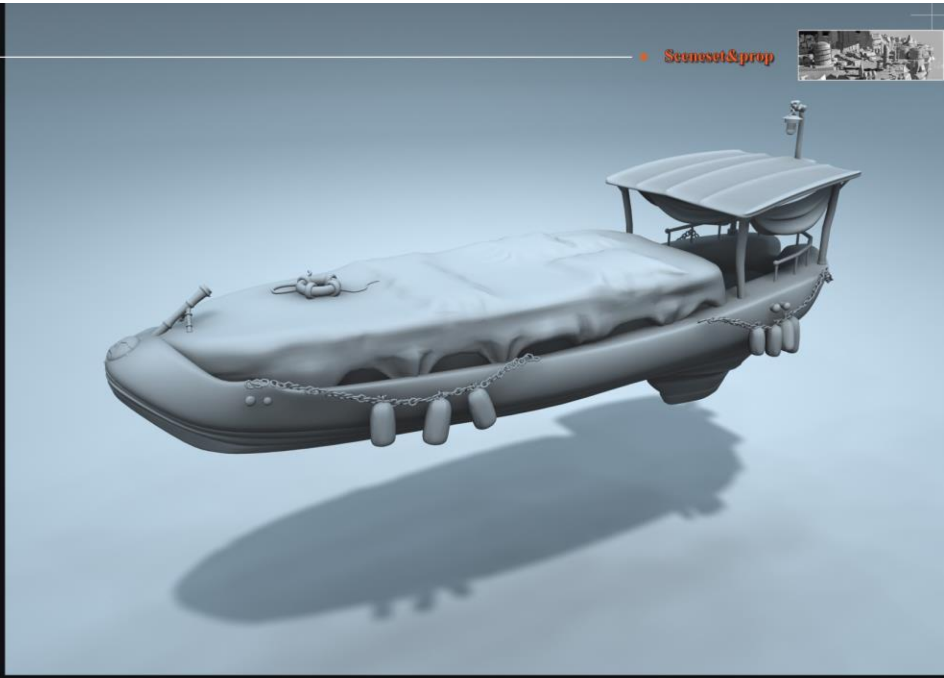


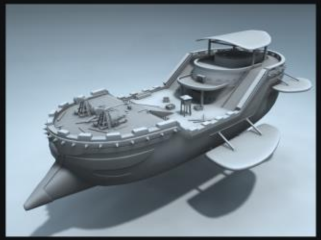


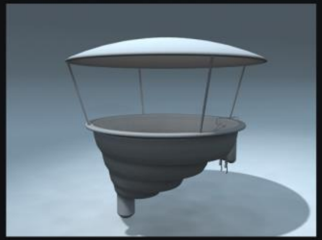
Farmreaper

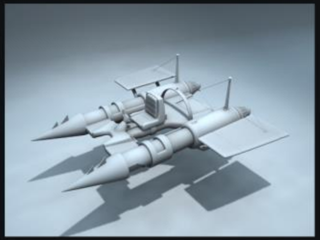


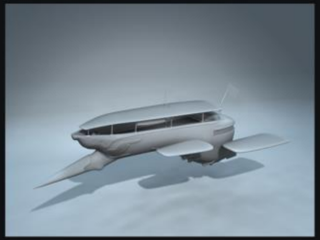


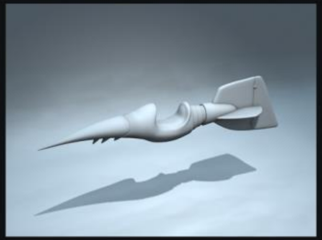


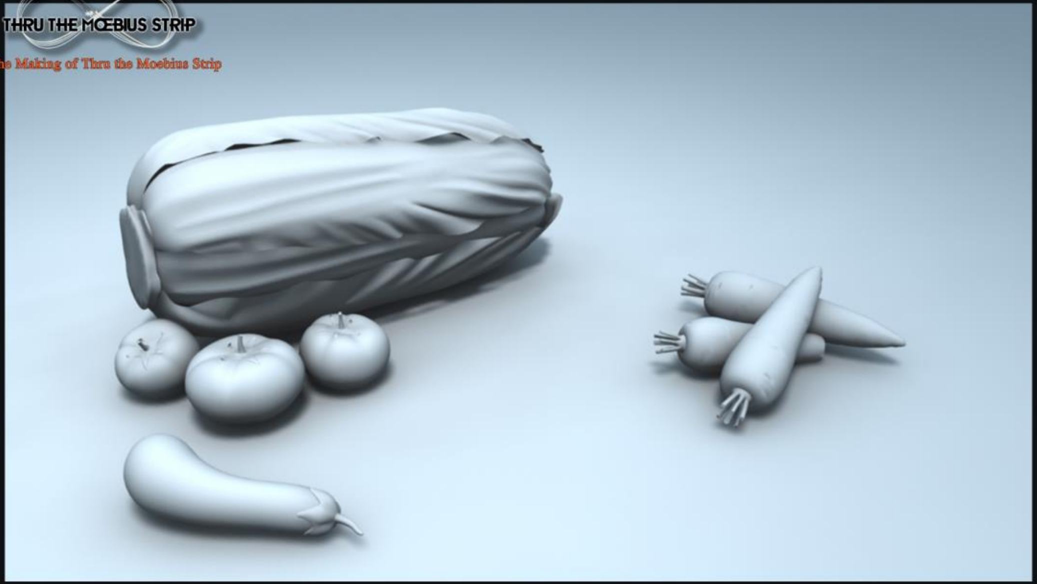


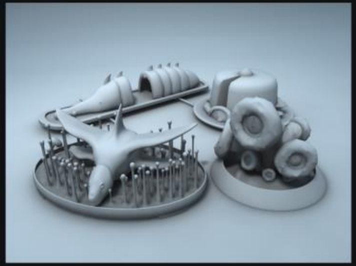


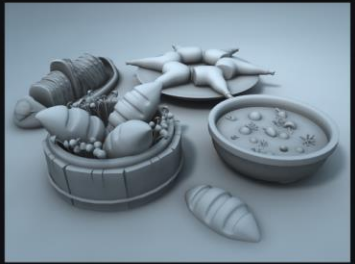




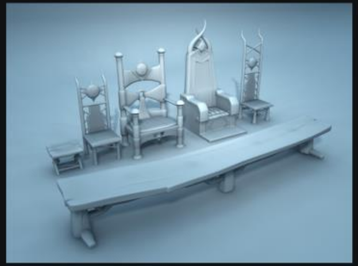


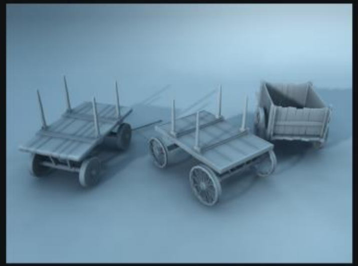


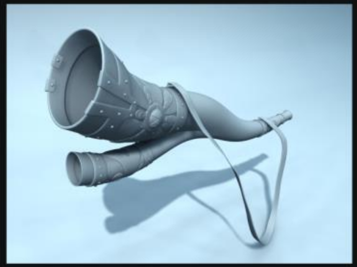


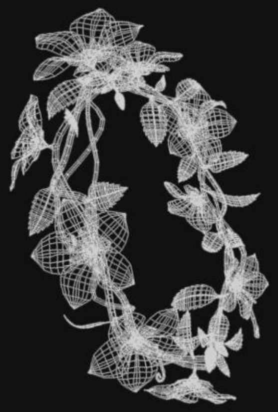
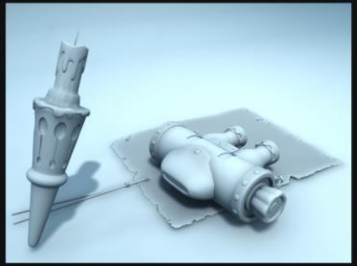
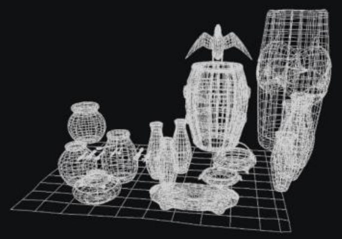


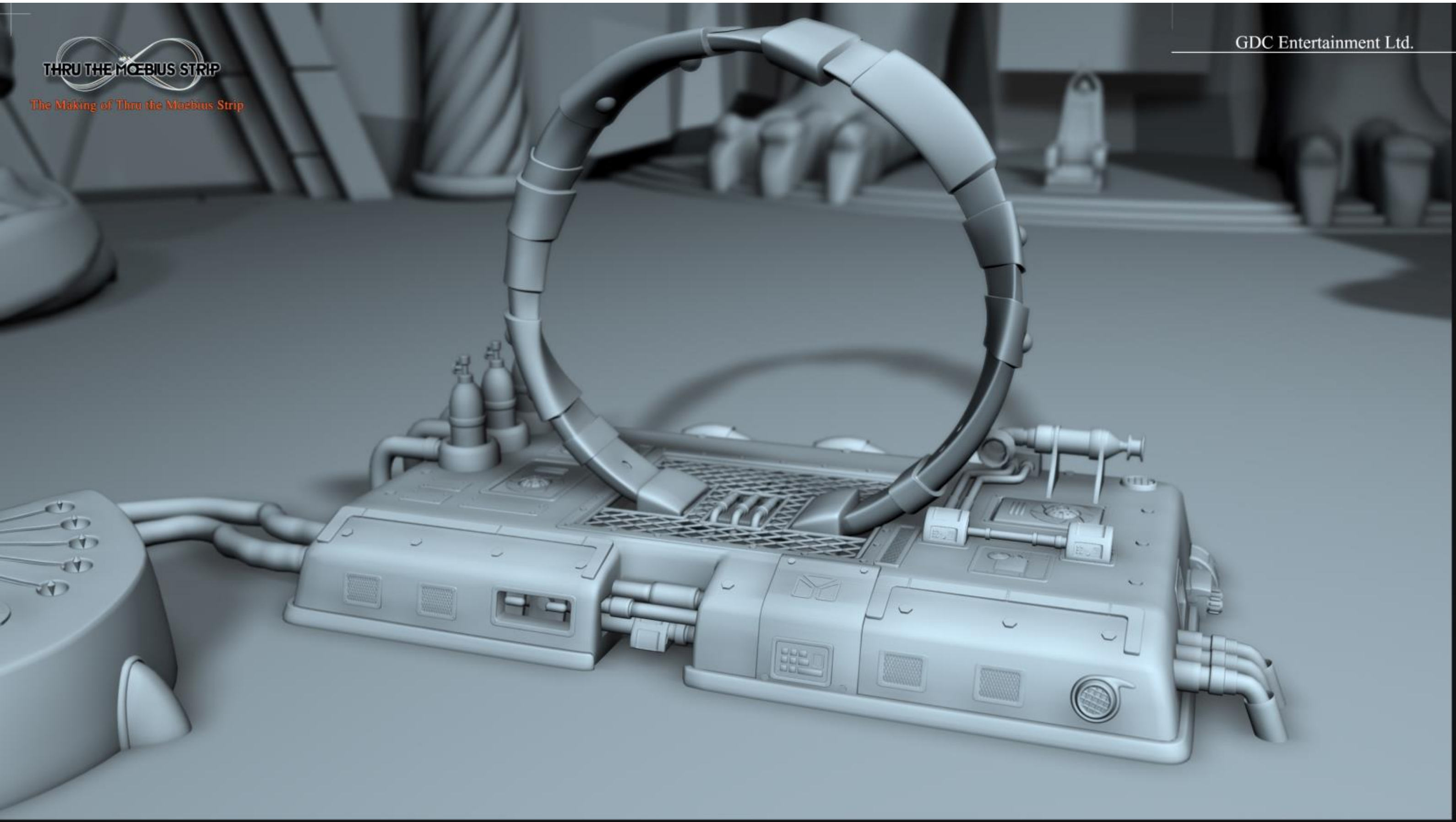


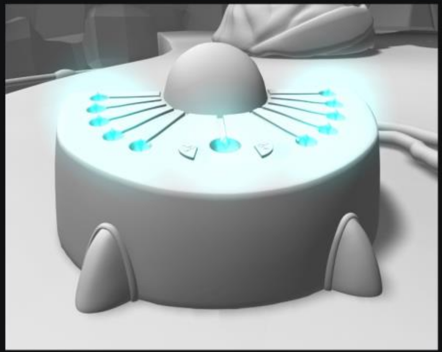


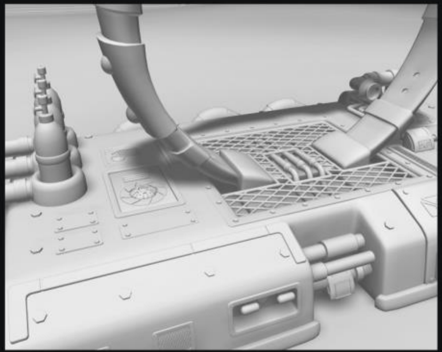



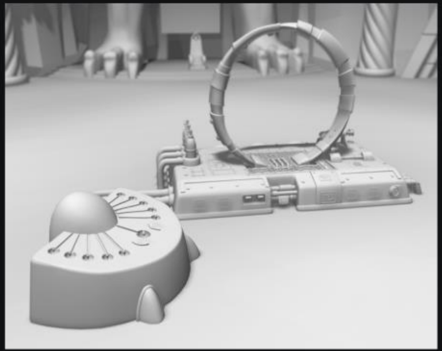



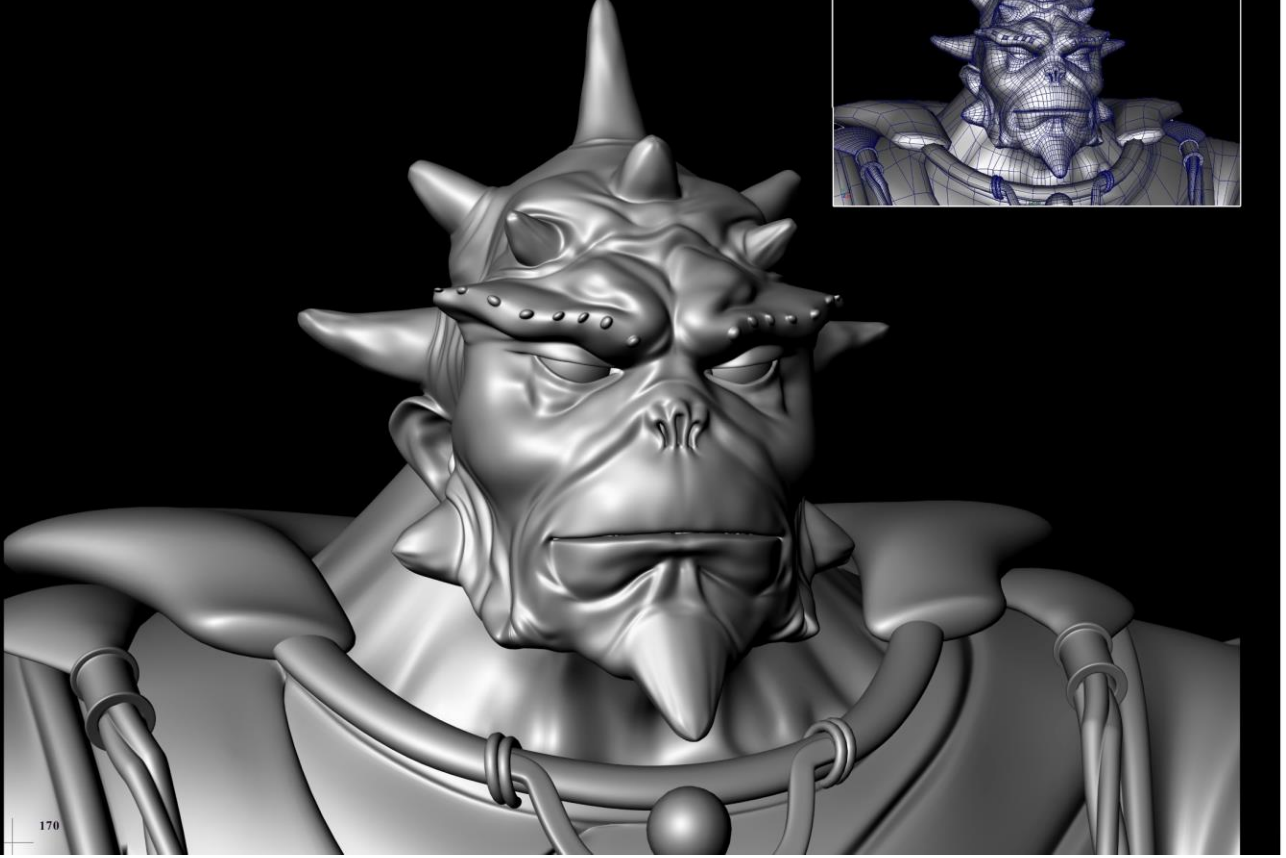



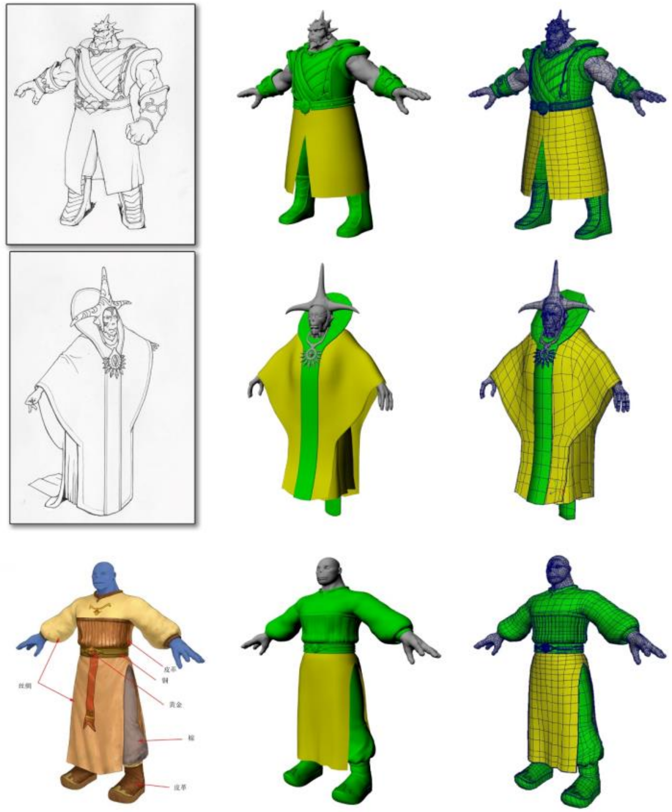






Giantportal



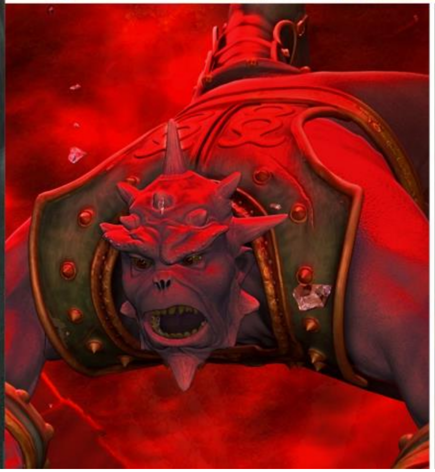


Kingtor

Shepway

Ragis

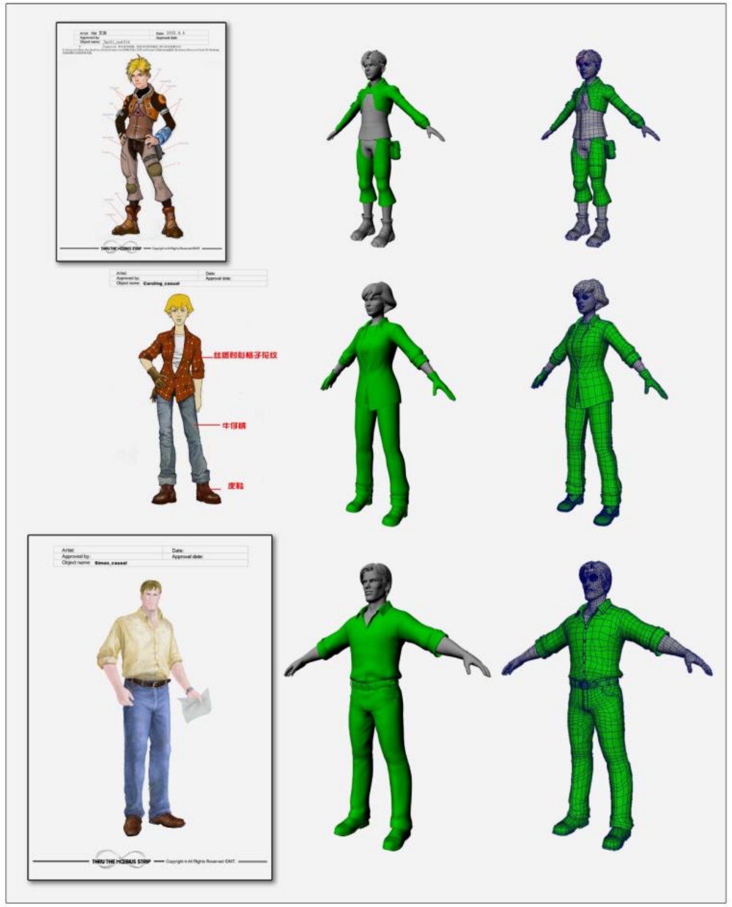
Realization of two main giant characters from 2D design images to 3D models in the movie and wireframe image of low definition models



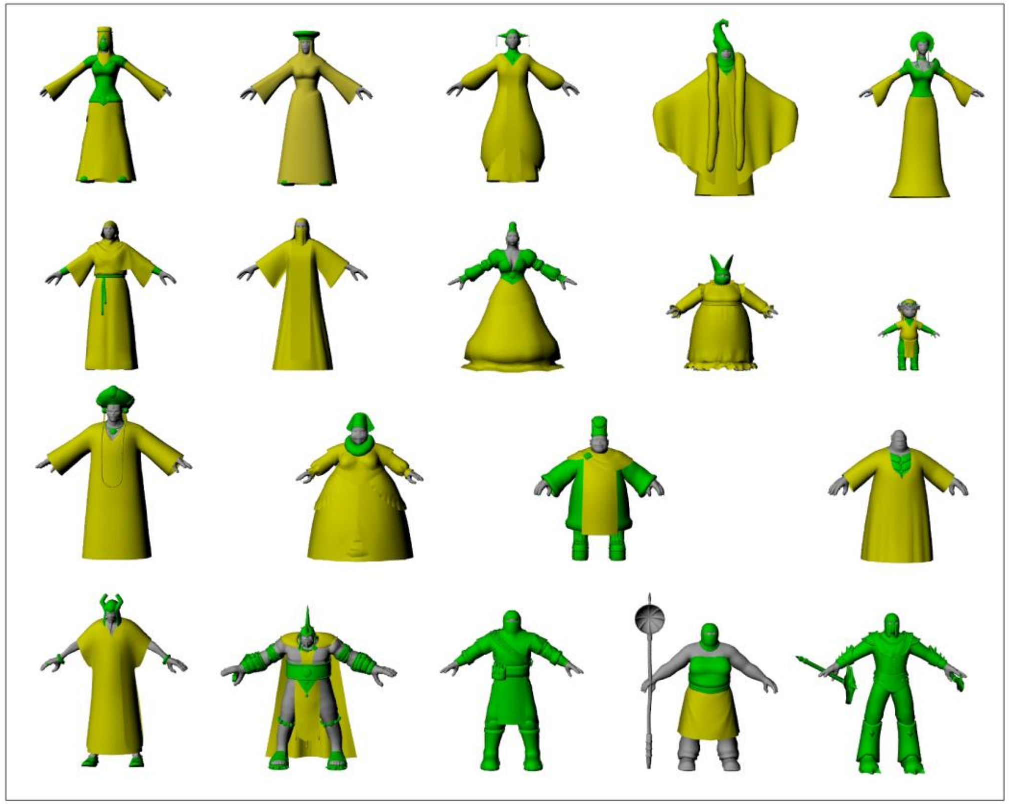
Jac

Caroline

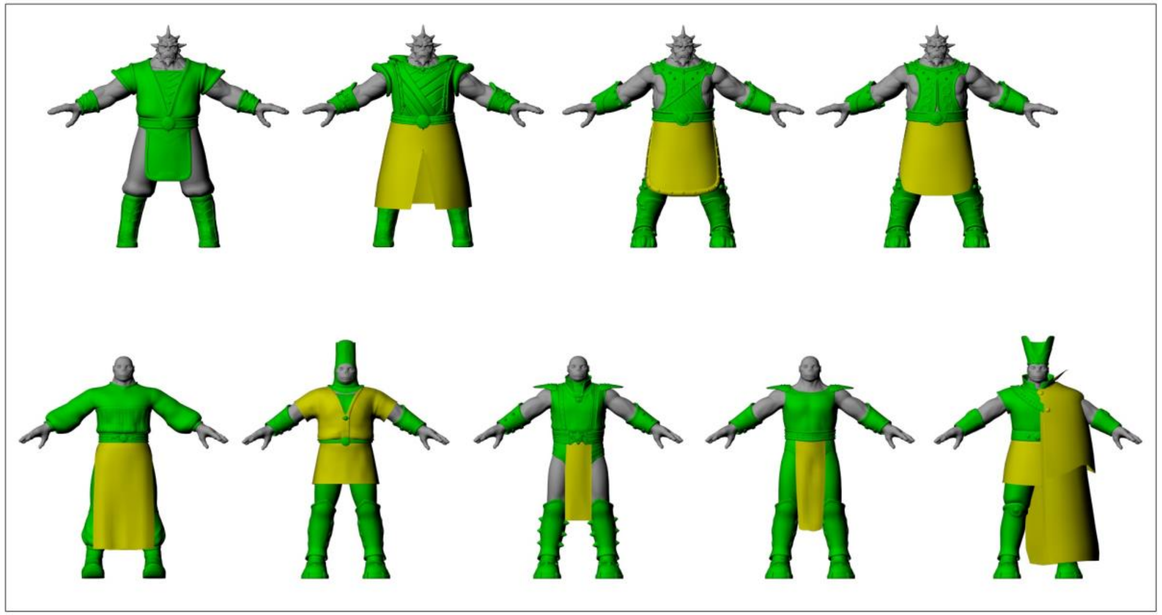
Simon



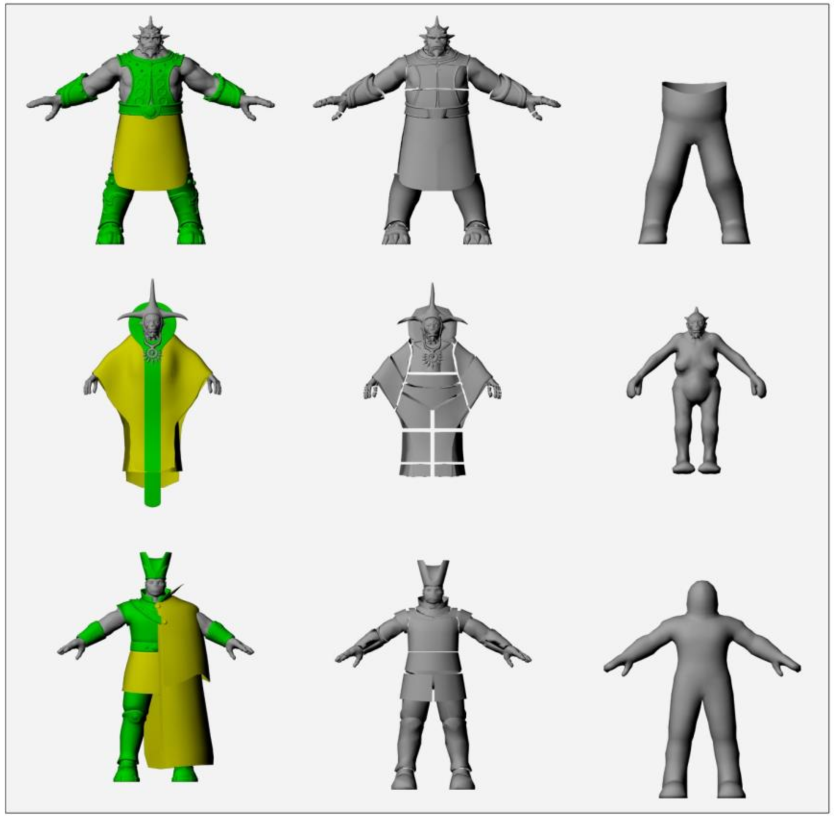
Realization of main human characters from 2D design images to 3D models in the movie and wireframe image of low definition models



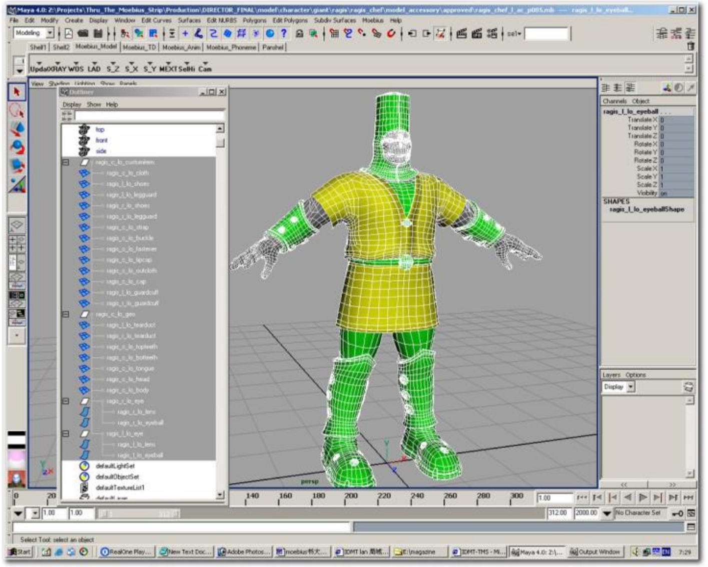
Secondary character models in the movie



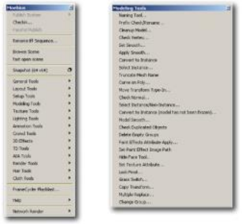
We have designed several sets of costumes for the main characters in the movie. Figures above show the Kingtor's and Ragis's costumes



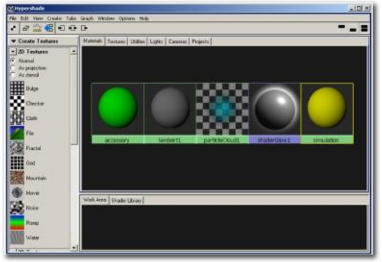
Each character has three sets of models when it is finalized. Shown here from left to right are low definition models without smooth, cut faces models used in animation, and collision models used in clothes simulation.



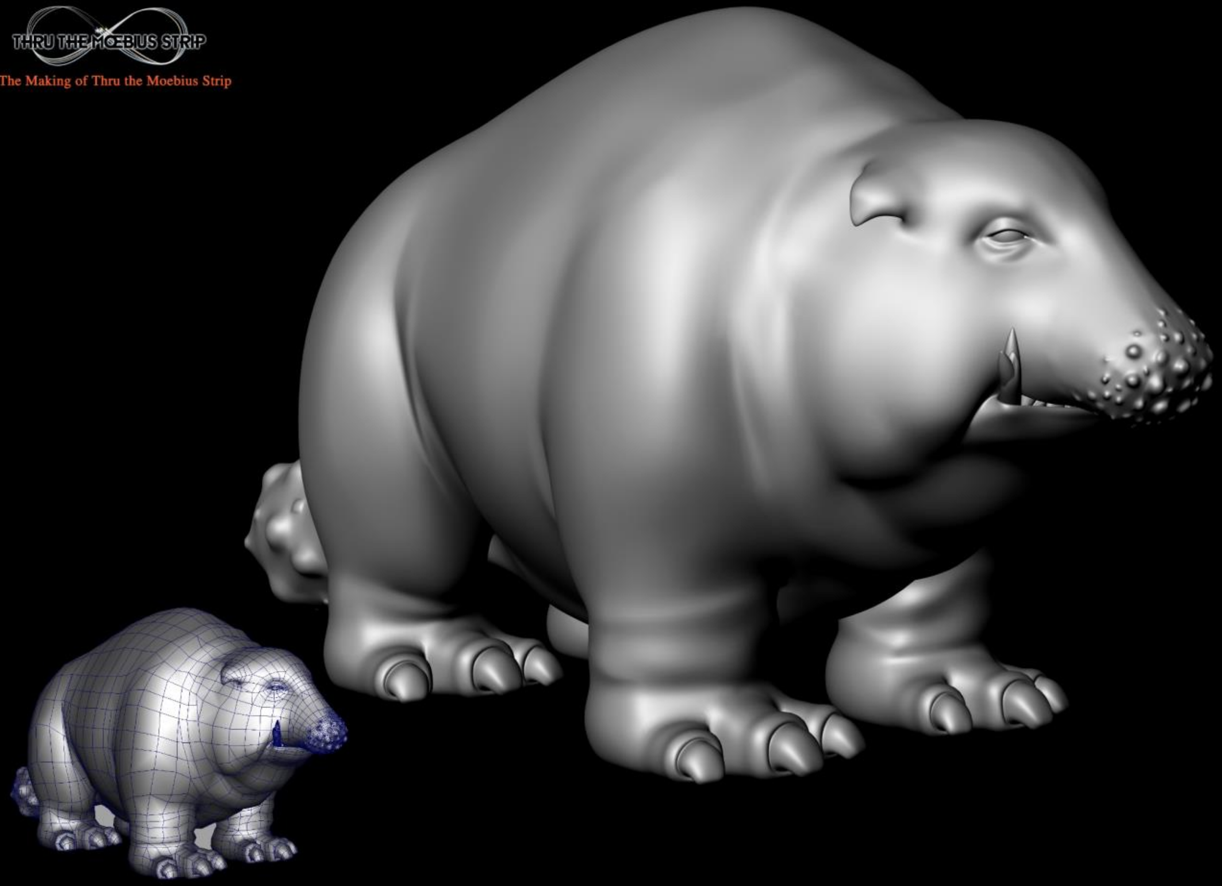
Name the character models according to strict reqirements; organize the models, lock transformations; delete layers; separate into two groups the body and the costume (including accessories).

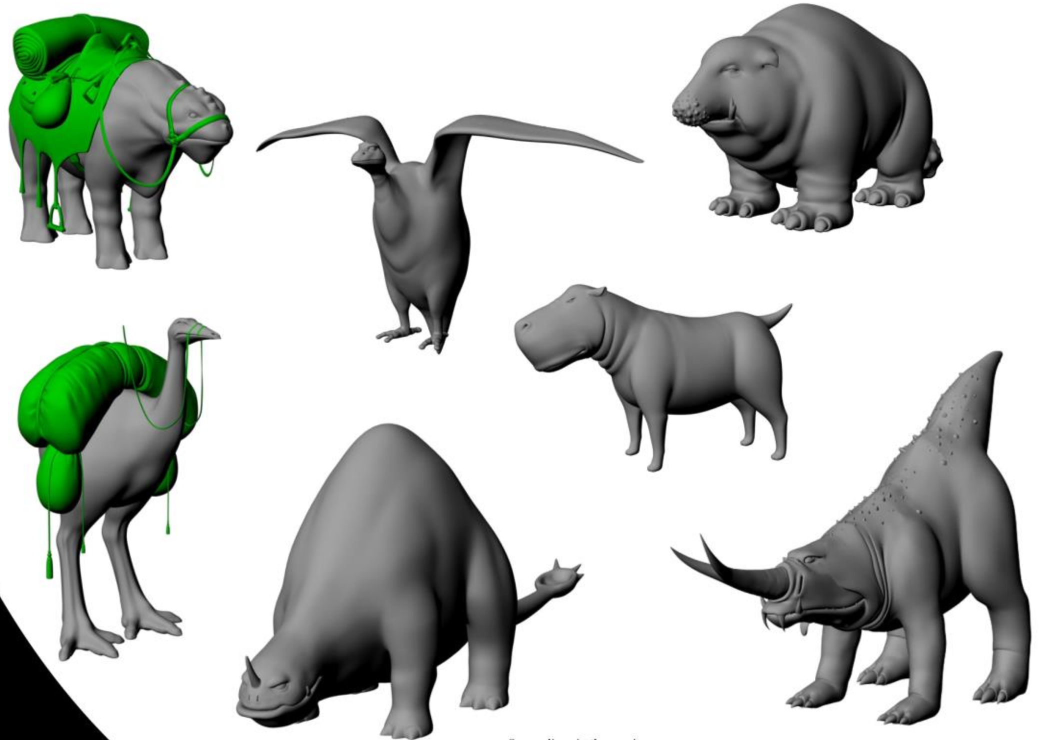


The new tool set our R&D Department developed for the movie



Separate the accessories in a character's costume into two basic texture areas according to whether or not simulation is involved.





Some aliens in the movie

Modeling Character Mouth Shapes

We have made many aliens for the movie, six of which are main characters and forty of which are secondary ones. The number of other aliens in various age groups reaches into the teens. We have also made a similar number of main human characters of different ages and a similar number of secondary human characters. So, all in all, there are over seventy characters for the movie, as shown in the "Thru the Moebius Strip Model Sheet" below.

Thru the Moebius Strip Model Sheet

A character reacts emotionally to the drama in the story, and facial expression is a very important element of its performance. Their mouths must move according to the flow of the dialogue. Although each character has its own expressions and mouth shapes for speech, all characters conform to the some principle and require the modeling of a set of shapes called expression targets, and another set called phonetic targets.

The twenty to sixty targets for each character can be classified according to five regions of influences: brows, eyes, nose, cheek and mouth.

The five regions of facial shape targets

We have 16 phonetic targets for lip-sync animation. Each is named according the phonemes it seems pronounce. For example, AAA names the shape mouthing the "a" sound in the word "Bat", or "ou" in "Bought", or "o" in "Cot"
EEE represents "e" in "bet" or "ea" in "sea".
BMP represents "b" in "bend" or "p" in "poor".
DTL represents "d" in "day" or "l" in "loud".

kingtor phoneme

AAA

kingtor phoneme

EEE

kingtor phoneme

BMP

kingtor phoneme

DLT

Each main character in the movie has about sixty targets, including expression ones and phonetic ones; each secondary character has about twenty targets. We have produced almost 3000 targets for all the characters.

Using Jac as an example, the classification and naming conventions of facial expression modeling as be described as follows.

Jac's expressions can be independent, left/right, or combinational.

Jac c mouth smil
an independent expression.

Jac l brow down
jac_l_brow_raise is
the expression of Jac raising his left brow.

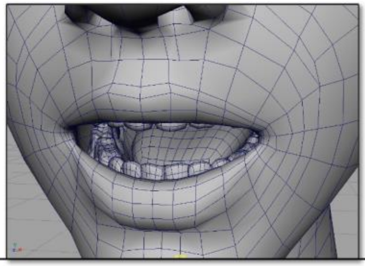
Jac c combine blow
Combinational expressions result from
combining independent expression in different regions.

To complement this poses of Jac's body, smile (in mouth region), squint (in eye region) and jac_phoneme_AAA of various degrees are used.

To complement this poses of Jac's body, smile (in mouth region), squint (in eye region) and jac_phoneme_AAA of various degrees are used.

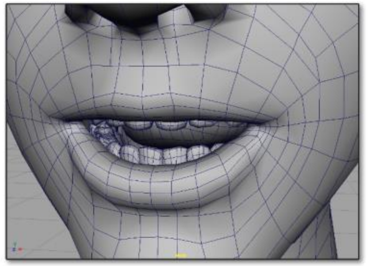
To show Ragis in deep though, his expression combines anger (of his brow), a bit of squint, and the tpliproll target.

Jac's character expresses phomemes in his dialogues visually by a combination of basic mouth shapes as well as tougue and gum shapes, all controlled via the blendshape tool. For example, raising or rolling the tip or the front of his tongue according to a particular phomeme.



Jac c phoneme

AAA facial expression target



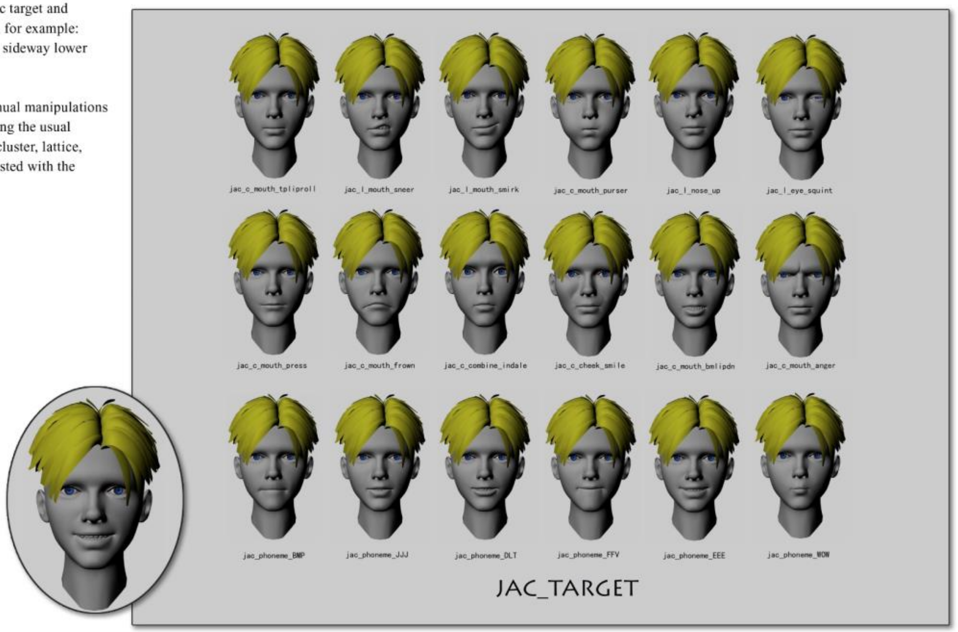
Jac c phoneme

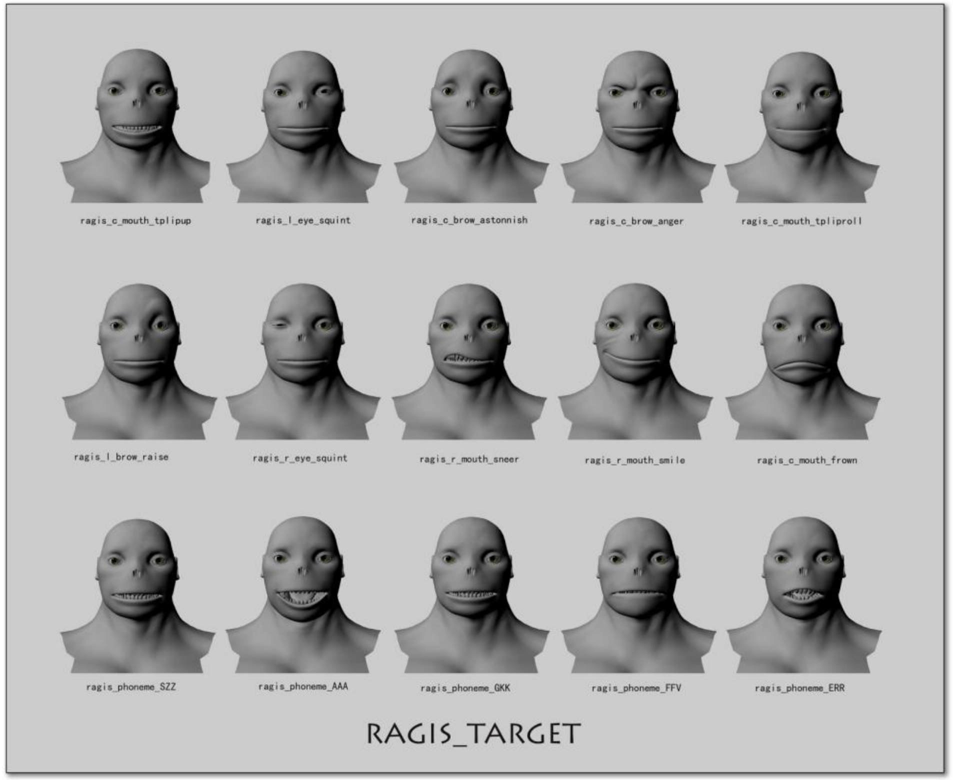
AAA tougue raising target

Because there are so many sets of expression targets and phonetic targets, a naming convention was establish to adapt them to the workflow and to facilitate file management: all expression targets are named as CHARACTERNAME_POSITION_ORGANNAME_EXPRESSIONNAME and all phonetic targets are named as CHARACTERNAME_POSITION_PHONEME (e.g. an expression target of Jac's mouth region is named jac_c_mouth_press.mb and a phonetic target of Jac is named jac_c_phoneme_AAA.mb). All targets are named with the word "target" as an independent object locked into the orginal position of the body part so that it may be imported into the Blendshape tool to be used by the animation department.

Although human characters and alien characters in the movie are of different species and thus have different traits, both have eyes, mouths, teeth, gums and tougues. So, the modeling of their targets are basically the same, both with five regions of expressions and sixteen phonetic targets. Special targets may be added according to the need of the story, based on existing basic target and refinement of mouth shapes, for example: extreme glare, vicious grin, sideway lower jaw, etc.

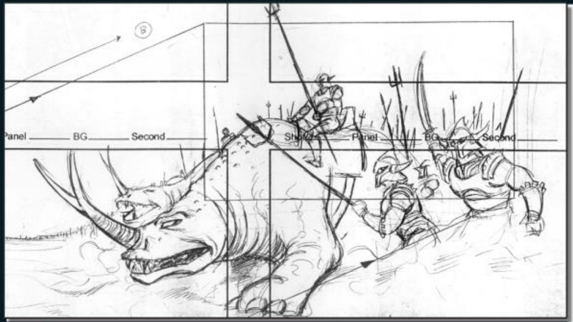
We building targets by manual manipulations of vertices as well as by using the usual deformation tools, such as cluster, lattice, brush, etc. The results are tested with the Blendshape Editor tool.





The creation of targets is an important part of modeling a character. It is closely related to the emotions expressed by the character. The modeling of facial expression targets exemplify the typical relationship between objective reality and artistic reality. The virtual is not the copy of the real; it is a new reality constructed by the re-analysis of the real. We should observed life closely and base our models on the objective realm, and by deducing the process of reality reasonably, we may let the audience experience the colorful emotional life of vitual characters.

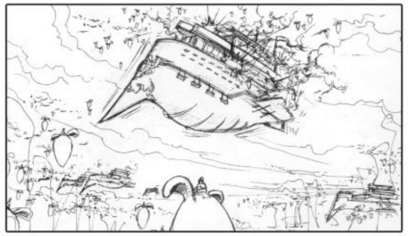
Layout

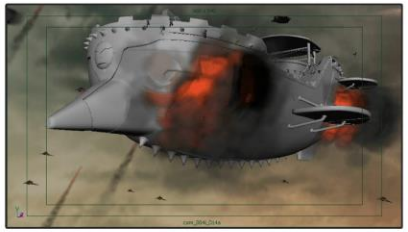


Layout is the first 3D step of a 3D animated movie. The main work of the layout team is take 2D storyboards into 3D space.

The movie camera's basic positioning in 3D world are known after layout is finished.

The following departments will continue production based on the cameras in layout.





There are several functions of layout:

1. It is not easy to create with storyboards accurate perspective relationships or precise descriptions of changes in the picture frame when the camera moves.
Therefore, there is a need for specific parameterization of the camera in a 3D production, such as its positions, paths of movement, and focal lengths .

2. Layout ensures that before the shots goings into different departments for mass production, there is a clearer and more accurate way for the director to understand the result than the storyboards.
If the camera position is found be problematic and therefore amended at this stage, not much is lost and the production will be greatly affect.
(in fact, it is rare to have a lot of amendments on set cameras in layout stage)

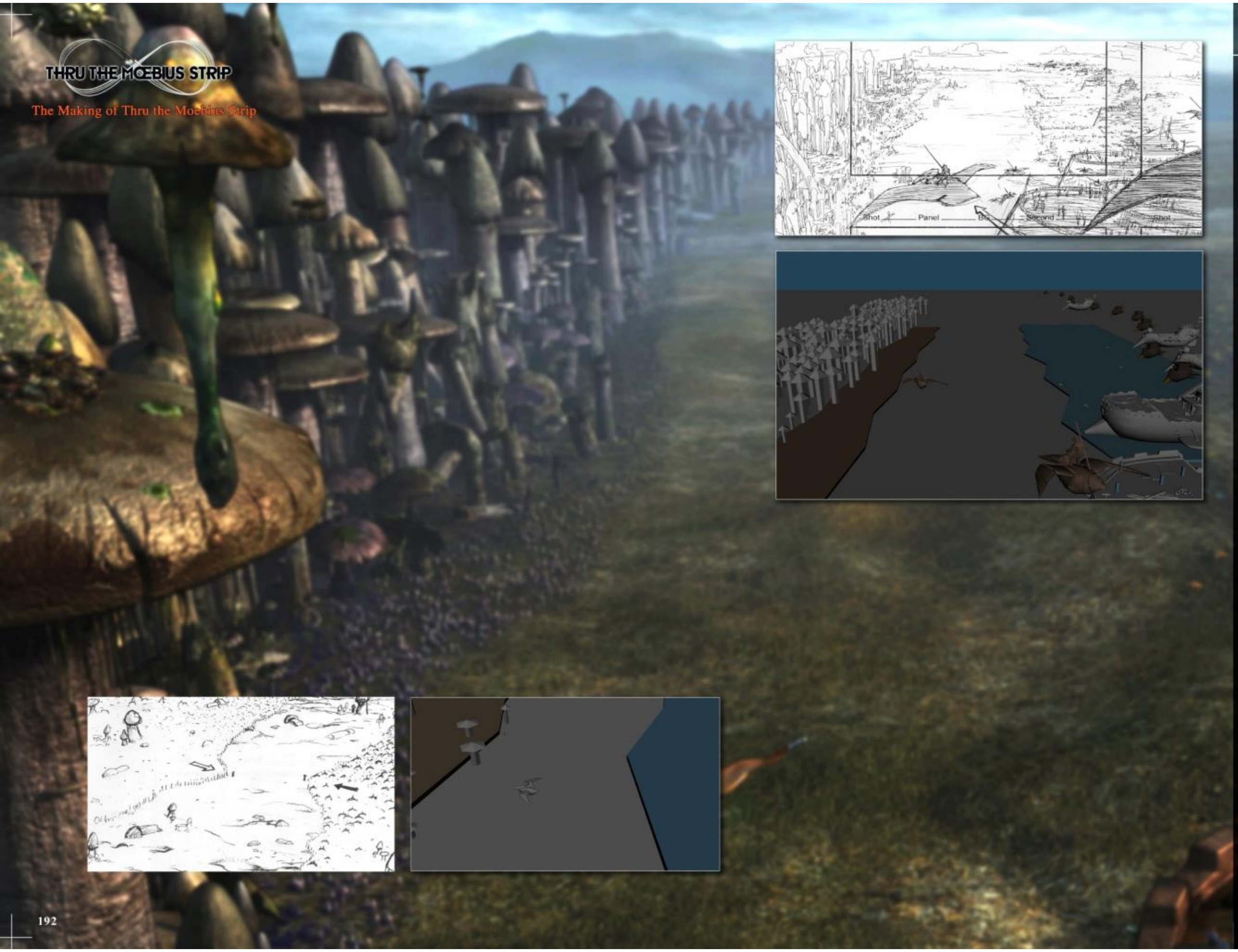
3. Layout can fix a shot's composition and framing, thus the area of visibility and motion attributes of the backgrounds and characeters in the shot.
Layout can therefore provide the Modeling and Texture Teams information such as the appropriate scale and level of details for building locations.

4. Layout can guide the planning and co-ordination of large scale and complicated shots.
For these shots, simple representations of elements such as special effects and crowds are realized, in order to pre-visualize and to plan them in detail.

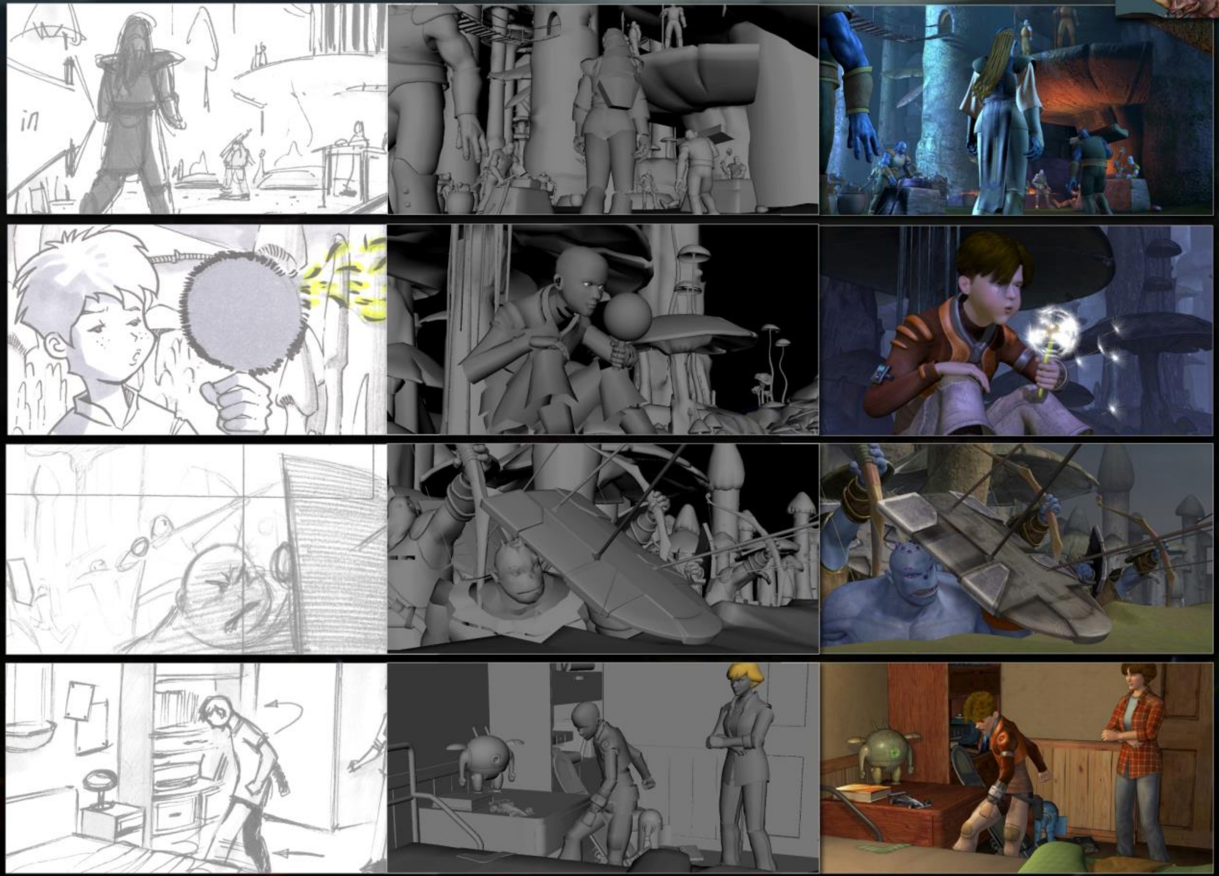
▲For efficiency, the level of details used in layout is flexible.

For instance, simple boxes can stand for crowds of soldiers in some shots without specific background. Such shots need not much details: only their framing and the position of their cameras need to be defined.

On the other hand, close-ups with emphasis on performance are done in more detail, especially in character animation. In fact, the layout of these shots are usually done by the Animation Team. This can guarantee more smooth and detailed animation. This also allows the animators to be familiar with these shots before they are done "for real".

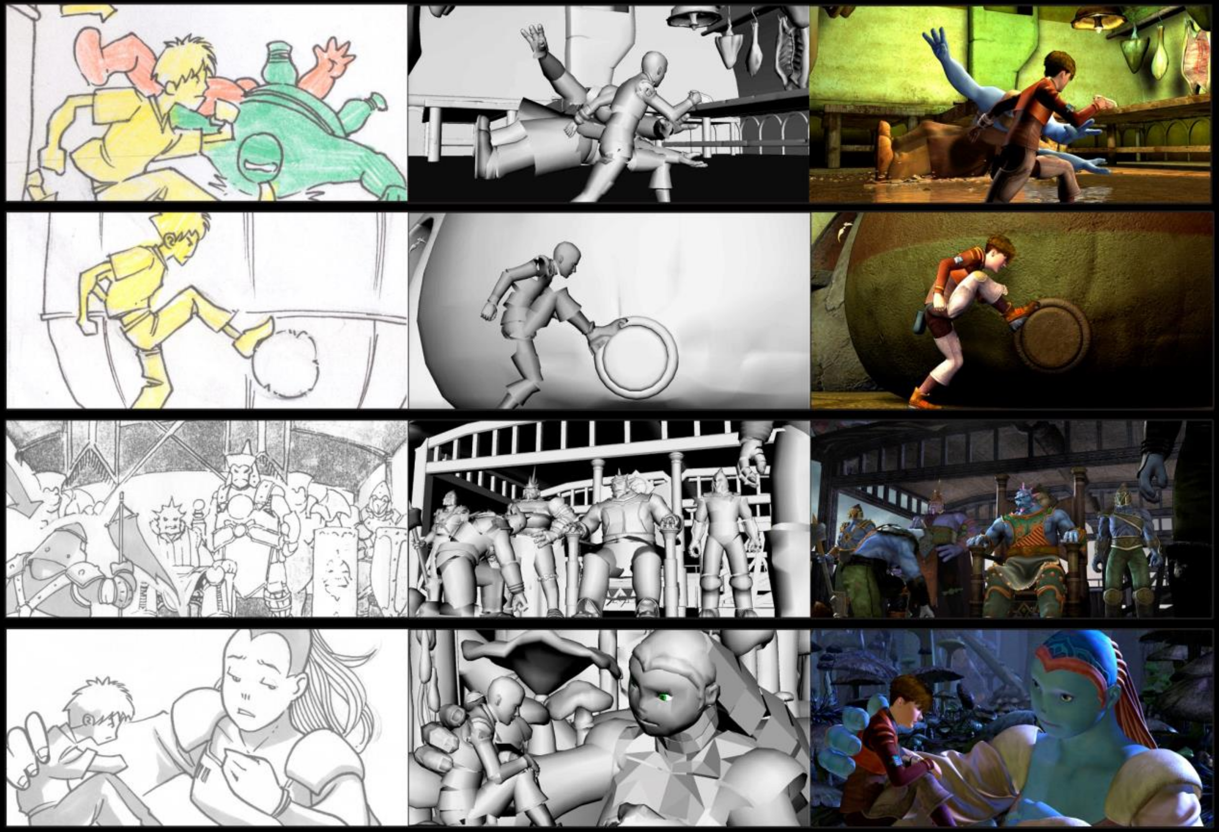


• Layout

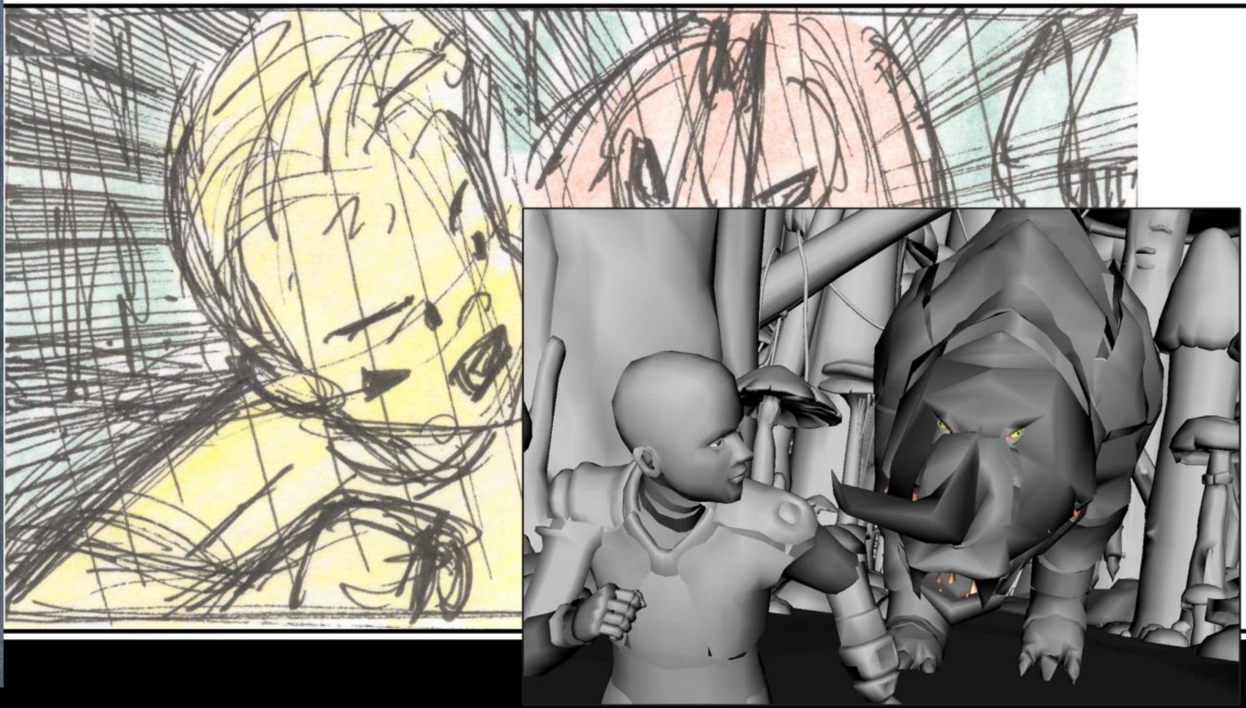


The production of Layout

CG artists produce layout according to the plots and description of the characters in the storyboards. Turning a 2D image in 3D space involves setting a camera, as well as spatial relationships of the characters in a scene.
The figure on the left is a storyboard; on its right is the corresponding layout.



CG artists produce layout according to the plots and description of the characters in the storyboards. Turning a 2D image in 3D space involves setting a camera, as well as spatial relationships of the characters in a scene.



Animation Production Process:

How can animators give life to virtual characters? Before starting to animate, animators need to understand their characters' histories, backgrounds, personality, motivations, relationships with each others, etc. from the director. Then, the animators usually spend 25% to 30% of their production time on preparation. They listen to the dialogues and watch reference videos as well as other references for special moves: video footages of the actors who voiced the characters were shot during the movie's recording sessions in the U.S. so that their performaces in relation to specific phonems are known to the animators.

Satisfied with the results of their research, the animators begin to stage the scenes or shots. Staging is the posing of characters in time and in a set. Animators may also draw thumbnail sketches of some poses acccording to dialogues and movements. Then, the animators places the camera in the set, showing their designs of movements until director is satisfied.

When the moves in the shots are thus fixed, the animators can sit in front of the computer and animate the characters based on all the data collected.







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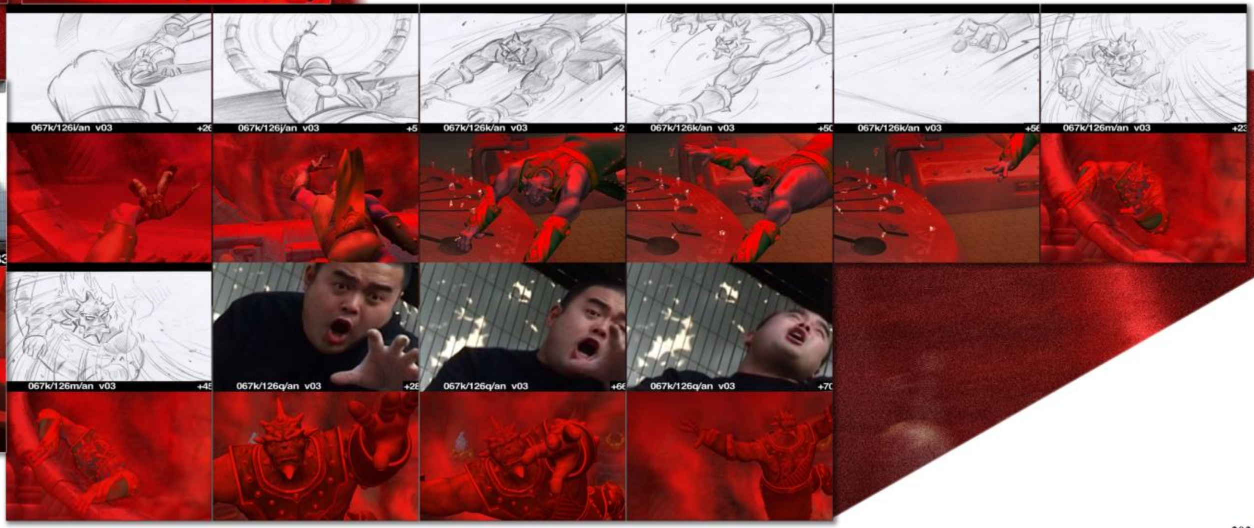
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The many faces of characters

Steven D.katz on Cinematography

Steven D.katz directs our use of the camera, helping the movie greatly.

Supervisors on Animation

Acting is a key step for producing animation. Only by knowing how to act better are the animations able to fully understand the emotional changes of characters in the movie, thus to create good performances in their computers.

Original Design

UV (texture co-ordinates) Assignment

Texture Positioning

Start production of texture

Dailies Sessions

Texture and Lighting Departments

In creating the visual style of a CG movie, Texture and Lighting Departments are two of the most important ones in the production. They basically complete how the picture looks, requiring artists who excel in both software uses and painting skills. The artists' creativity and imagination are also highly emphasised.

The texture department's work is to give all models with different kinds of texture by creating the corresponding texture maps, expressing different materials seen in real life, such as skin, clothes, mud, wall, glass, metal, wood, etc;

The lighting department lights every shot of the movie. It simulates in the computer the lighting of real-life shooting conditions while ensuring these effects can be achieved technically.

Lighting

Production pipeline of lighting

Animation files
- Pre-light according on color script
- Understand contents and story of shots from layout

Technical texture
1 Optimize texture: using Texture Tools
  Optimize Scene size (default parameters)
2 Set setsmooth attributes
3 Import texture
4 Import clothes
  Delete old clothes model
  Import clothes with simulation
  Import clothes texture with simulation
5 Check for Switch Nodes and shader problems

Lighting Department
1 Import Masterlighting
2 Seperate the background (and render for the 2D department, after setsmooth and lighting it)
3 Approval
4 Test rendering (of key still frames, from the beginning + middle + end of shot)
5 Set setsmooth attributes
6 Network Rendering Test

Rendering in layers by TD

Produciton pipeline of texturing

Model file
- Understand in-depth the color scipts from pre-production
- Understand contents and story of shots from layout footages

Texture file UV works
1 Get models which are not smoothed
2 Adjust setsmooth attribute and distribute UV's

Material Maping
1. Start production of texture — Position a map in Deep Paint3D; Paint the map in Photoshop
2 Create texture nodes network
3 Name texture shaders and maps
4 Set setsmooth attributes
5 Test rendering
6 Approval
7 Scene optimization — Reset smoothing to zero then delete history; Delete or combine unnecessary nodes

Character

Raphicca has benn under the absolute rule of King Tor for a long time. He killed his brother to be the King.

He is very aggressive and wants use magical crystals to open a gateway to enter and control other worlds.

To stop King Tor, young Prince Ragis and Bodkus, leader of the rebels, join forces in their fight against Tor. They defeated evil and the future of Raphicca is bright.

King Tor is the embodiment of evil. His strong character and the dark side of his heart are reflecting through the portrait of his facial expressions and costumes.




The chamber has a heavy and cold basic tone, with characters positioned at its front door. So, the key light is the cool crsytals outside the door and the fill light is comparatively weak warm light inside the palace. These lights gives the space depth and highlights a tragic atmosphere. Particular lights gives the characters more detailed portraits, which foreground their personality while still integrating them into the environment.

INT. TEMPLE OF HIGH PRIESTESS.

Different cold and warm lights are used to reflect the feeling of characters. Cold tone is used to describe Tor: the cold light which underscoring his face from bottom to top portraits the merciless of the murderer.

For the priestess, warm light is used to depict her bright and positive sides. Subtle lighting on her clothes makes the character more vivid.

INT. TEMPLE OF HIGH PRIESTESS.

Throneroom

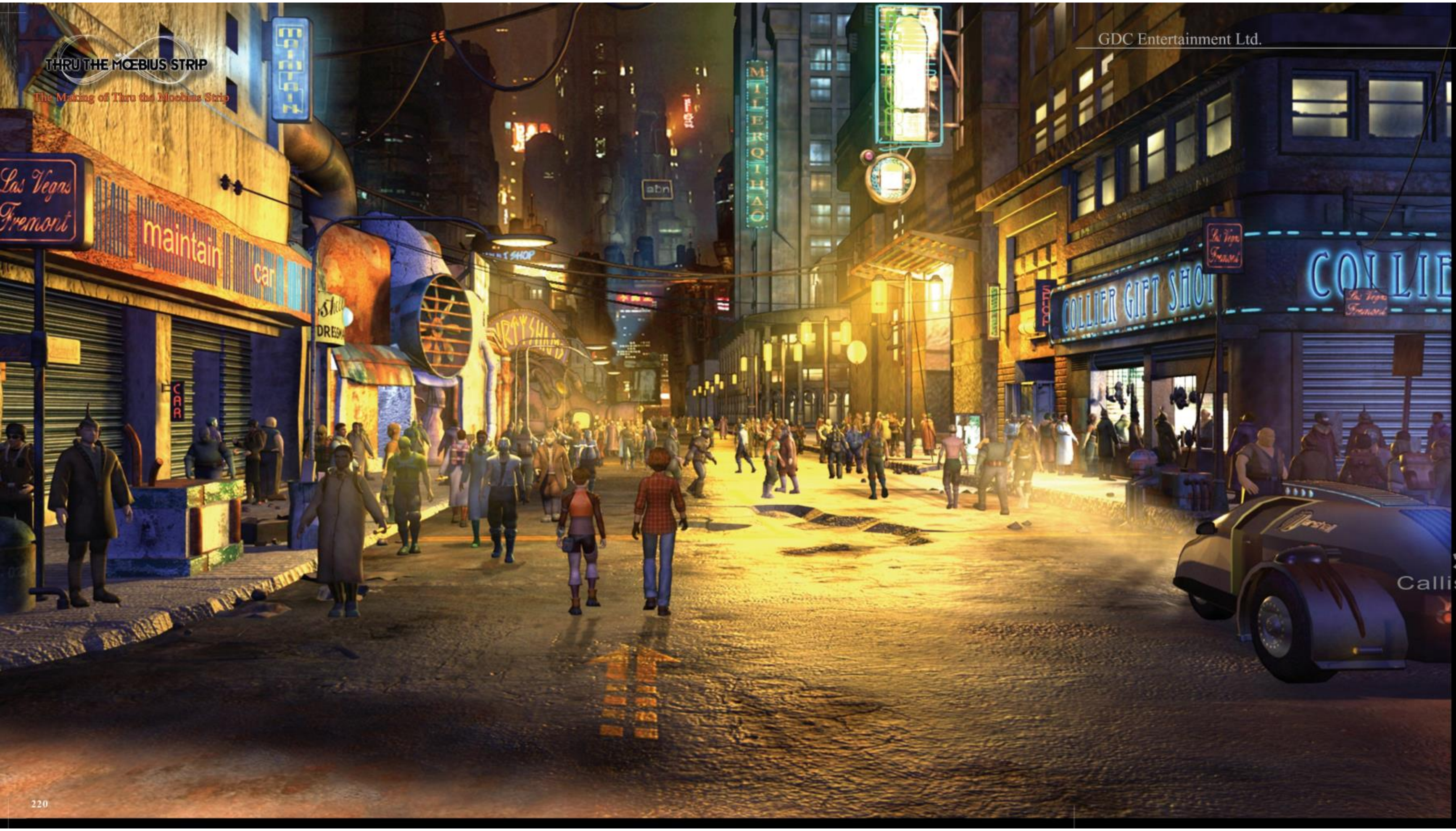
From the 2D design to the final texturing and lighting, the Throne room has an elegant and mysterious atmosphere. Colorful and refined patterns show Raphicca as a planet with a glorious and ancient civilization.

textrue

troneroom

The room of the highest priestess Shepway is a significant location in the story, where the highest priestess Shepway cultivates her skills and teaches her students. In the center of the room, there is a big rock altar projecting a sparkling light beam towards the vault.

An abundance of hand-painted texture and detailed totems build up the mysterious and magical culture of the alien world and the mysterious power of the sci-fi movie.



灯光

Callisto星球的城市街道

夜景的制作关键在于：对街道中发光体的表现。比如说：路灯、霓虹灯、透出光的窗户等。在对callisto城市的制作中，这些发光体本身都是用贴图来控制材质的发光区域，并配合glow来模拟光源的效果。部分霓虹灯闪烁的动画，则是用ramp（渐变节点）改变贴图的发光范围来实现的。

在灯光效果的表现上，主要是配合材质的光源的效果，对周围建筑和人物进行有序的布光。使光源的效果与周围环境的收光相呼应，让画面更加真实可信。

Callisto City

The above pictures actually are from the same shot. In the movie, the camera floats from way up in the air all the way down to the ground level. The result is a location with a large number of models, with dispersed and complex light sources, which make texturing and lighting it quite difficult.

For instance, there are more than 80 lights all over the set, with no less than 50 shadow-casting key-lights, resulting in huge files with intensive computation loads. It is finally produced in parts, according color and lighting organzations as well as visual rhythm and pacing.

The scene file is separated into foreground, middleground and background parts, the former two of which are further divided into nine sections according to the camera's height from the ground. Each section is given one key light as it visual center. The final effect is then achieved by putting all the different sections in parts together.

The entire city is situated in the crack of a cliff. The air is thin outside, so the lighting is made stronger comparing a sunset on the Earth.

The contrast between area in and in shadow is the main point of the picture, to be emphasized by the use of lighting. The contrast between the artificial and the natural, i.e. between the "cliff" and the "city", is an important starting point In texturing it.

The entrance of mining town - Callisto

The challenge is in complexity of the set's model: at the end the city and the cliff are separated. The city is further divided seven smaller sections to be brought back together for the full image.

So, the overall co-ordination is important. The scale ralationship between the texturing of different material and the shadow areas of the various lights also requires attention. These two relationships determine how real and how big the set looks.

Planet Callisto

The strange geographical environment of the planet demands prominence be give to the texture of rocks, as well as the spacious spatial relationship with a strong contrast between the shading of background, middleground and foreground.

The contour line of objects close to the camera are highlighted to give a feeling of grandness to the rocky mountains, and a sense of lifeless and merciless to the nature, paving the way for later.





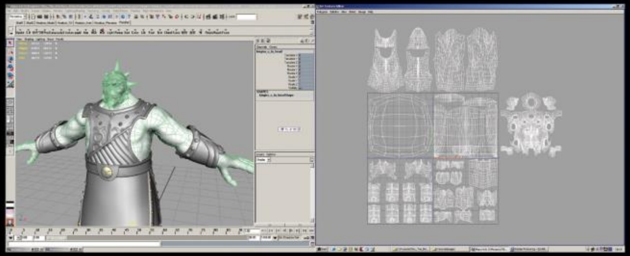
Callisto

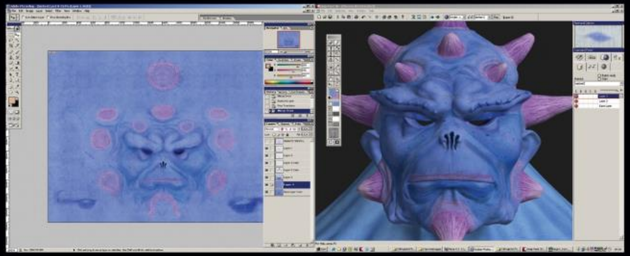
The chase scene on Planet Callisto requires an exciting atmosphere created by texturing and lighting. To make cliffs and rocks look real is hard; harder still is to make they look dynamic. Getting a few good texture maps is crucial for this.

The rebels stay deep in a highly dense part of a mushroom forest. Their leader Bodkus receivess Jac with hospitality.

At noon, sun light is quite strong. Objects' looks change according their depth of field. The sense of depth is deepened by the use of environment fog.

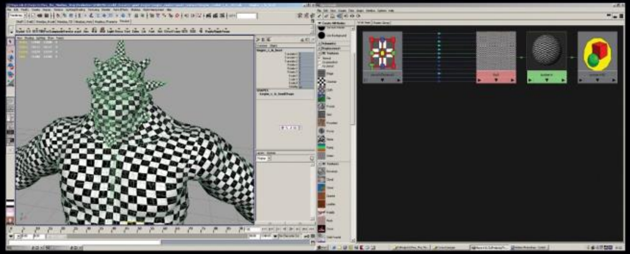
EXT. REBEL'S HIDEOUT

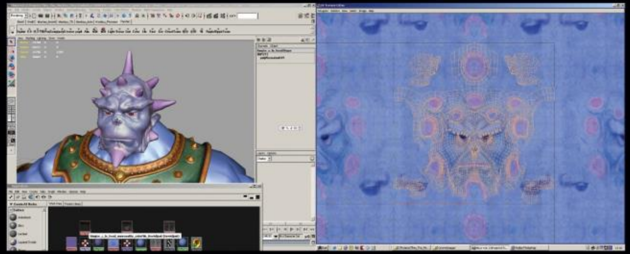




King Tor (Texturing of Character)

Mapping materials onto texture co-ordinates (UV) is a very complicated process. The map's size must because considered from the moment the UV's are distributed. The UV must match with the level of Setsmooth without stretching; Stitches in textures are inevitable and must be hidden in the least visible part.





King is one of the main characters; he rules Raphicca. As he represents a dark force in the movie, a palette of cool tones is used for him to expose his evil nature.

A few touching scenes on parting and union run a main thread through the movie.

Soft lights outlines well fleshed out characters.
Deep in a huge mushroom forest, a story is developing…

This battle scenes with two troops fighting is quite tense, and its scale epic.

Crowd animation and special effects are the focus of this scene. It also puts pressure on lighting department as this scene involves a lot of technical challenge.

A demanding scene for lighting, which makes one sense a storm is coming, starts so quietly that it is awful … then troops assault with suffocating horror

So, the lighting is colder, greyer, and with low contrast. Cannon fires here also need to be simulated. The strong cold and warm contrast between the firelight and the environment intensifies the atmosphere of the battle.

Location Lighting

EXT. MUSHROOM FOREST -- DAY

My brothers, our Kingdom has been perverted by one man's lust for power.

He has killed your King, his own kin, to feed that lust and plunged us into darkness.

Today, the Light has returned to us. Seize Tor!

The castle of Kingtor built by rocks looks strong and grand. Not only the general outlook but also every small part have to be handled in detail.

The method of imitating the lighting of nature matching with texture producted at the same time. Since the scene is quite large and it has to be divided into different parts for render use.

Later, all parts are merged resulting in the final effects.

2D designs and 3D renderings for the kitchen

INT. KING TOR'S CASTLE - OUTSIDE THE HALL OF KINGS

Lighting here has be heavy, sad, almost surreal in atmosphere. A theatrical type of lighting is therefore used. The lights are subjective, the tone transits from warm to cold, implying Ragis' misery.

INT. KING TOR'S CASTLE: HALL OF KING'S.

The general impression here is grave, grand and holy.

The light from the fire place at the wall contrasts with the lights from outdoor and from deep in the hall to form a transition from warm to cold and from bright to dark, which brings out the depth of the space.

INT. TOR'S PORTAL CHAMBER - DAY

The evil king Tor's castle is filled with sharp and crossing lines.

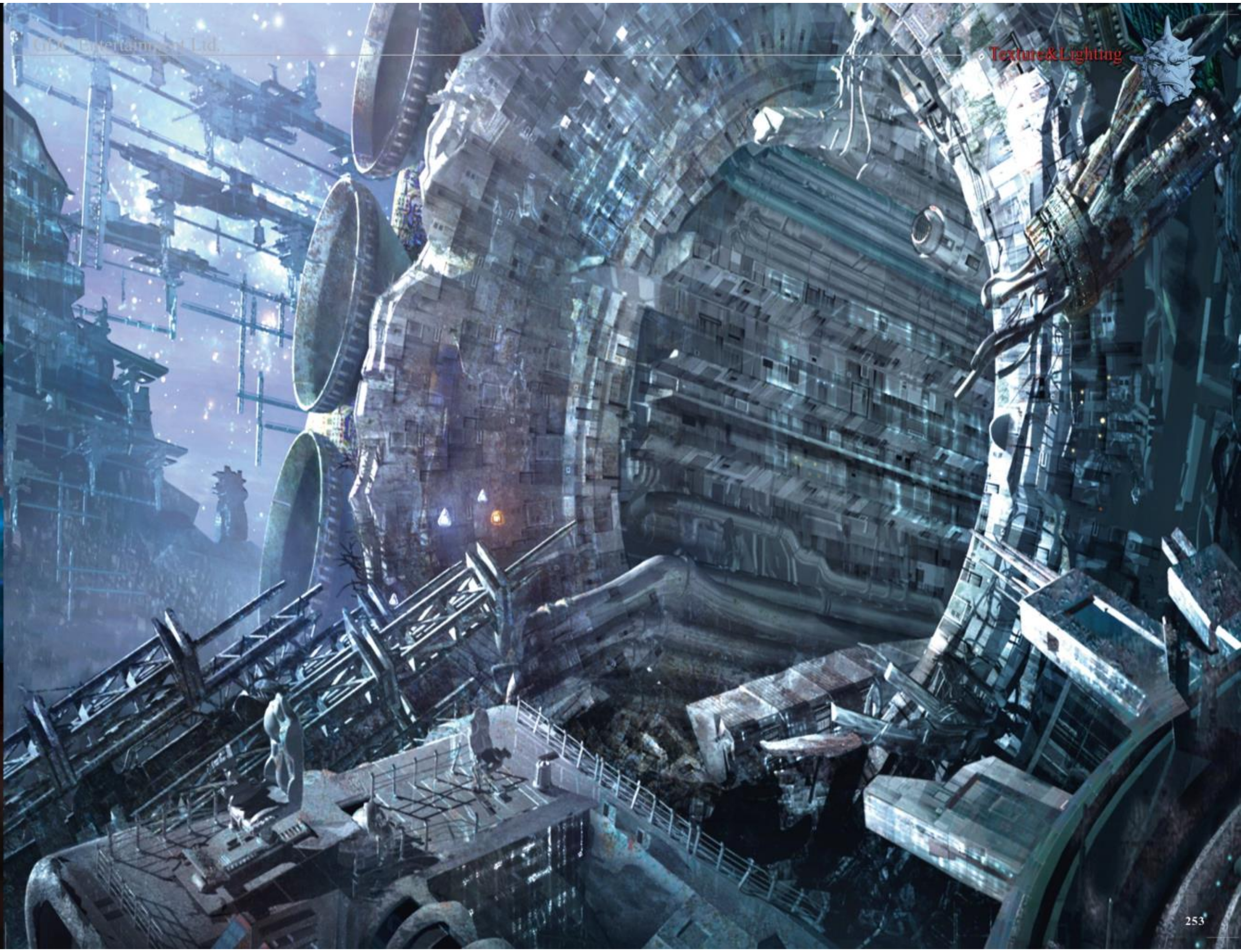
Cool colors, like blue-greens, are used to represent Tor.

Lighting Characters

To outstand human figures and express the feeling of the characters. Desert Planet , thick golde yellow color is the main tone in the lighting on characters. It can integrate well with the background and looks thick but not without layers.

Opening of the Portal in Tor's Chamber

After the portal is opened, one can see the fantastic alien world. These scenes are done with the help of special effects which further add mysterious elements in it.



Texturing Characters

Allana is one of the main characters in the movie. The director has four sets of costumes designed for her according to the story.

Since this character has a pure personality, her daily clothes are simple. Only the dress she wears for the coronation is more generous.

2D Design

The reflective silk with embroidery makes Allana's dress looks more majestic.

Shepway

This texture map is from a test done early in the production, while our main concern was to try to understand the relationship between texture maps and UV, thus the vivid colors with lots of line patterns in the texture.

color map

Animal Beast

These are the characters in the parade scene, which is relatively important in the movie; so, even supporting roles are done in detail.

Arthur (Robot Character)

Arthur is one of the main characters.
A lot of time is spent on testing the reflective properties of the metal surface.

Robot Accessories

Most maps used for the accessories are hand-painted instead of photo-based.
The cracks in these metalic props are more difficult to create than in other props.

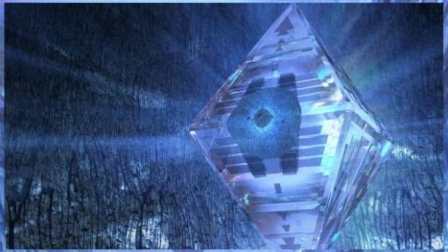
EXT. KING TOR'S CASTLE

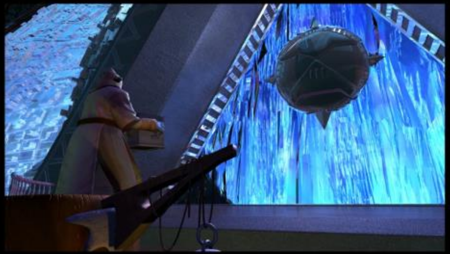
The castle looks grand and its interior is refined. More than one hundred texture maps are used in the castle to illustrate the old kingdom with a long civilization.

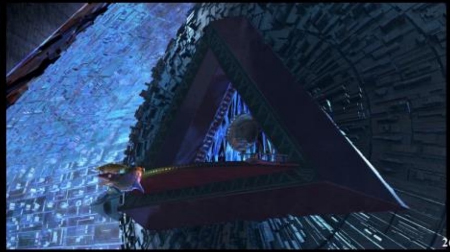
In front of the temple of the priestess, the light of the crystals in the background is the key light, with cool blue light source as environmental light.

The background is weakened by the used of depth of field; the key light on the characters highlights their contours. The weak warm light in the room shines up to etch out vivid personilities, giving the scene a rich layered look.

INT. TEMPLE OF HIGH PRIESTESS.

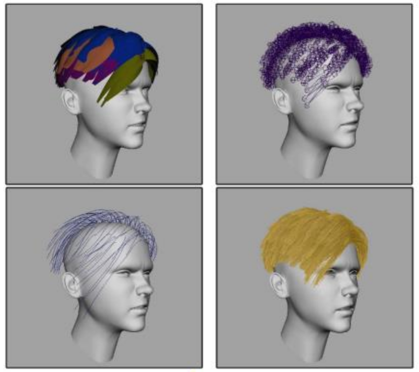






Crystal

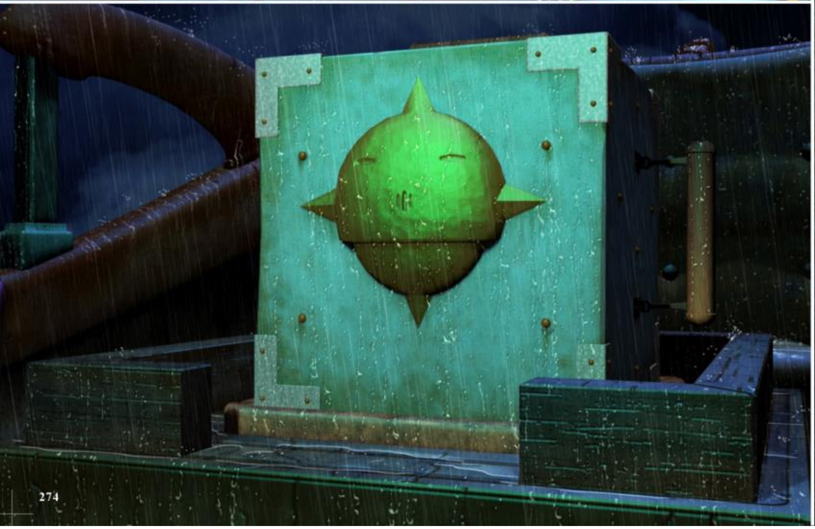
Cloth

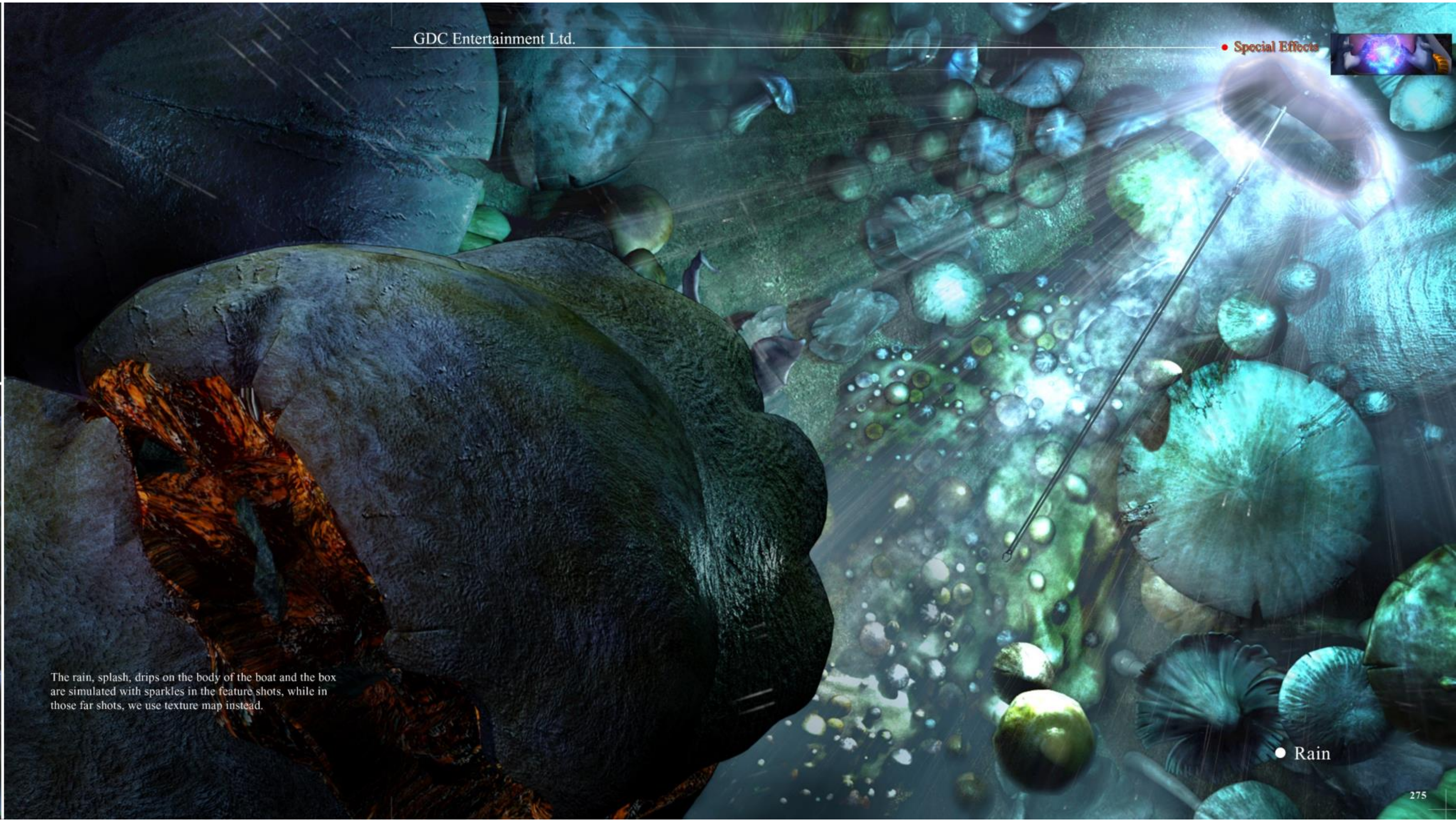


The hair is animated by soft bodies or clothes simulations, and is rendered with Paint Effects in Maya. Our Research and Development (R&D) department has developed related tool menus, model controls, curve simulations, skeleton controls, etc. to facilitate the creation of hair.

A costume's cutting, supposed fabric and how it moves determines if cloth simulation is used for it. Except tight-fitting clothes and armors, nearly all costumes in the movie involve simulation. Simulation puts more demands on computer hardware and continuity in character animation, but results in clothes that moves and looks more real.

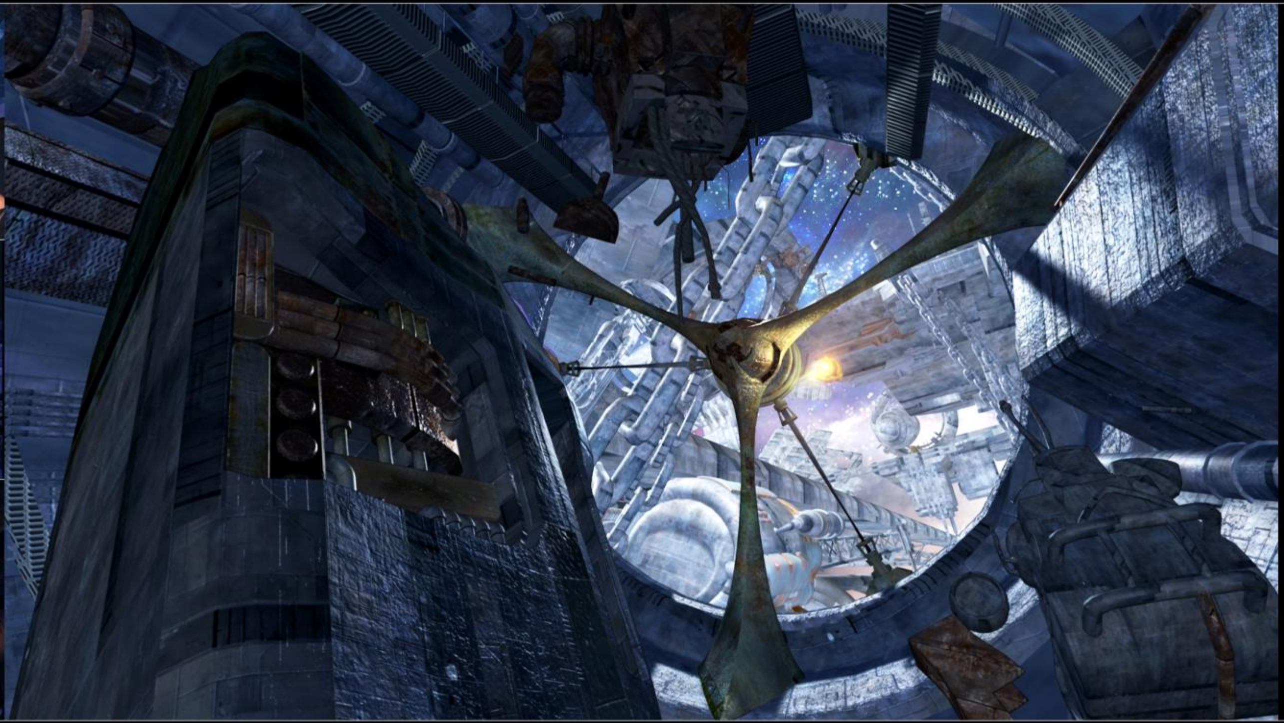

POLICE
-8-





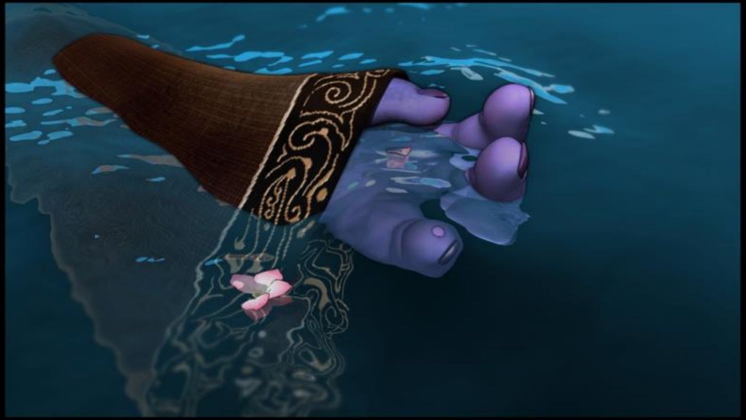
The rain, splash, drips on the body of the boat and the box are simulated with sparkles in the feature shots, while in those far shots, we use texture map instead.

● Rain

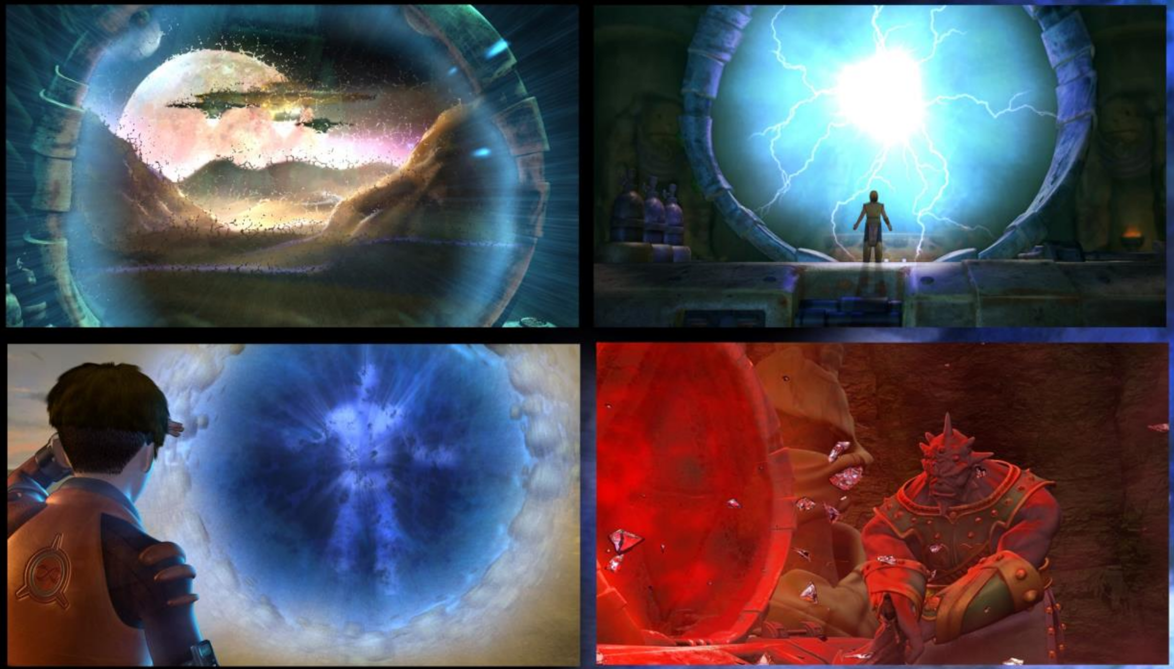


Water

The large water surface and raytrace cost large amount of resources during rending but with good result. At the same time, to choose the reflected objects skillfully can speed up rendering.



● Portal



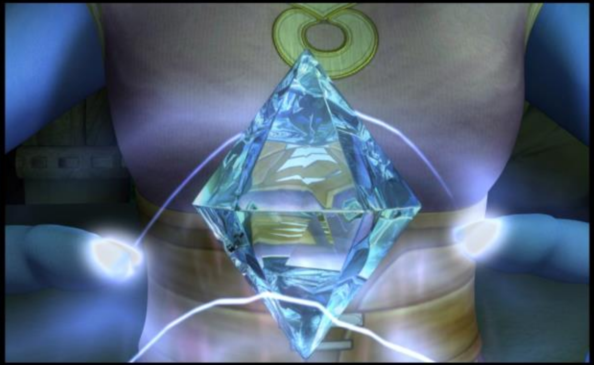
Portal has the different forms in the different shots, as well as the stability. We try to keep its consistency but also with visual difference and forms in the different space and time.

Explosion

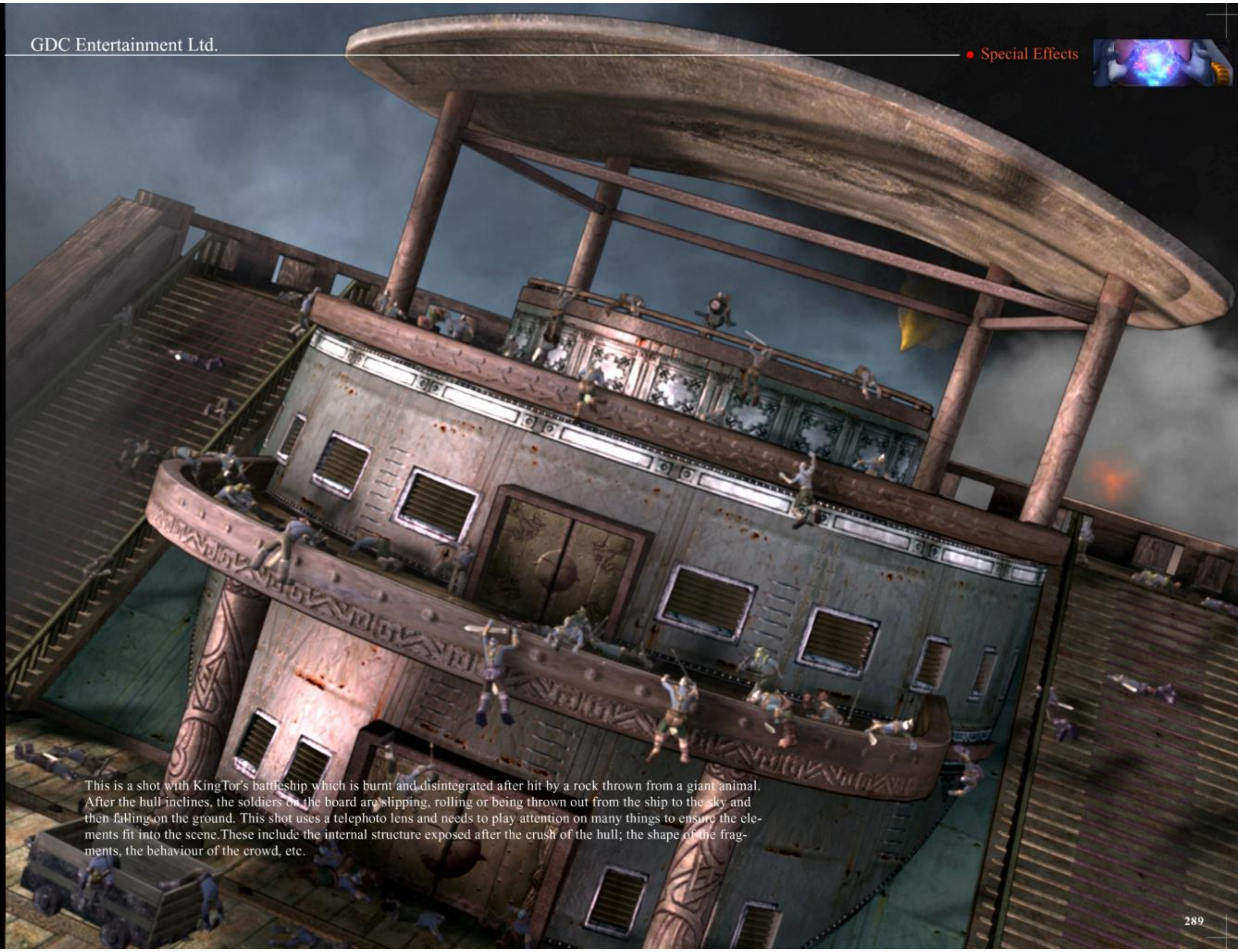
Dusts are used in most explosions to give them impact. Compared with fire or smoke, dusts looks more volumetric and has clear highlights and shadows, which make them better candidates for use in visual cheating, especially in CG movies.

Magic

Using the power of magic to let the creatures possess more magical mysteriousness.



● Warship explosion

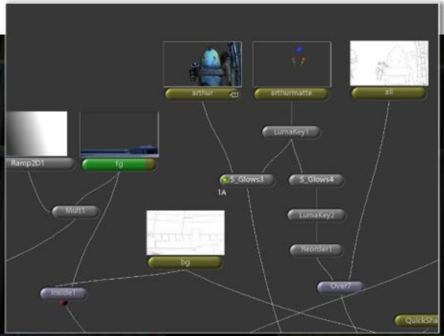


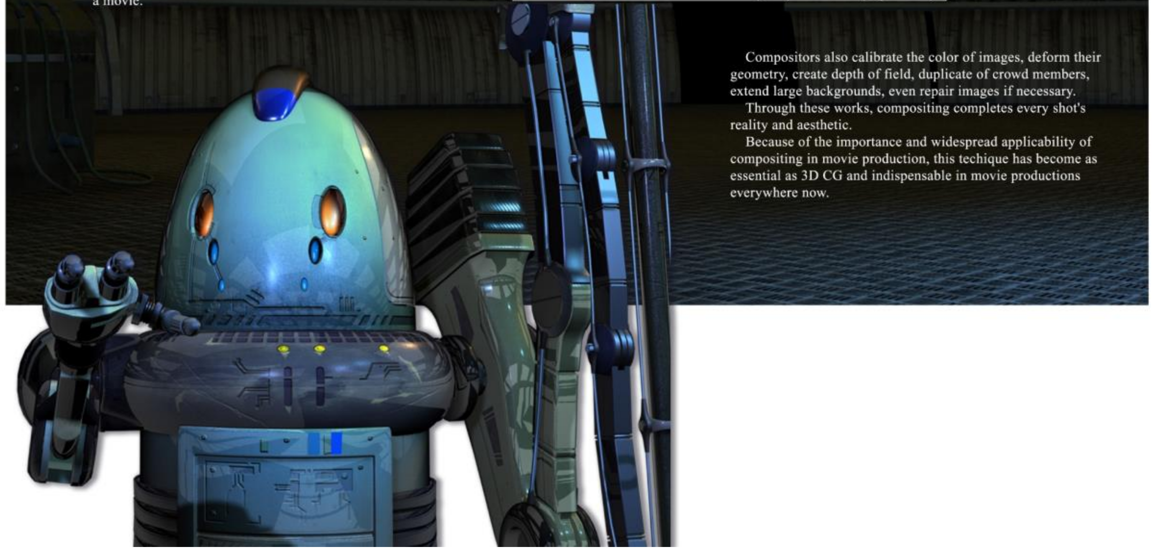
This is a shot with KingTor's battleship which is burnt and disintegrated after hit by a rock thrown from a giant animal. After the hull inclines, the soldiers on the board are slipping, rolling or being thrown out from the ship to the sky and then falling on the ground. This shot uses a telephoto lens and needs to play attention on many things to ensure the elements fit into the scene.These include the internal structure exposed after the crush of the hull; the shape of the fragments, the behaviour of the crowd, etc.


POLICE
8

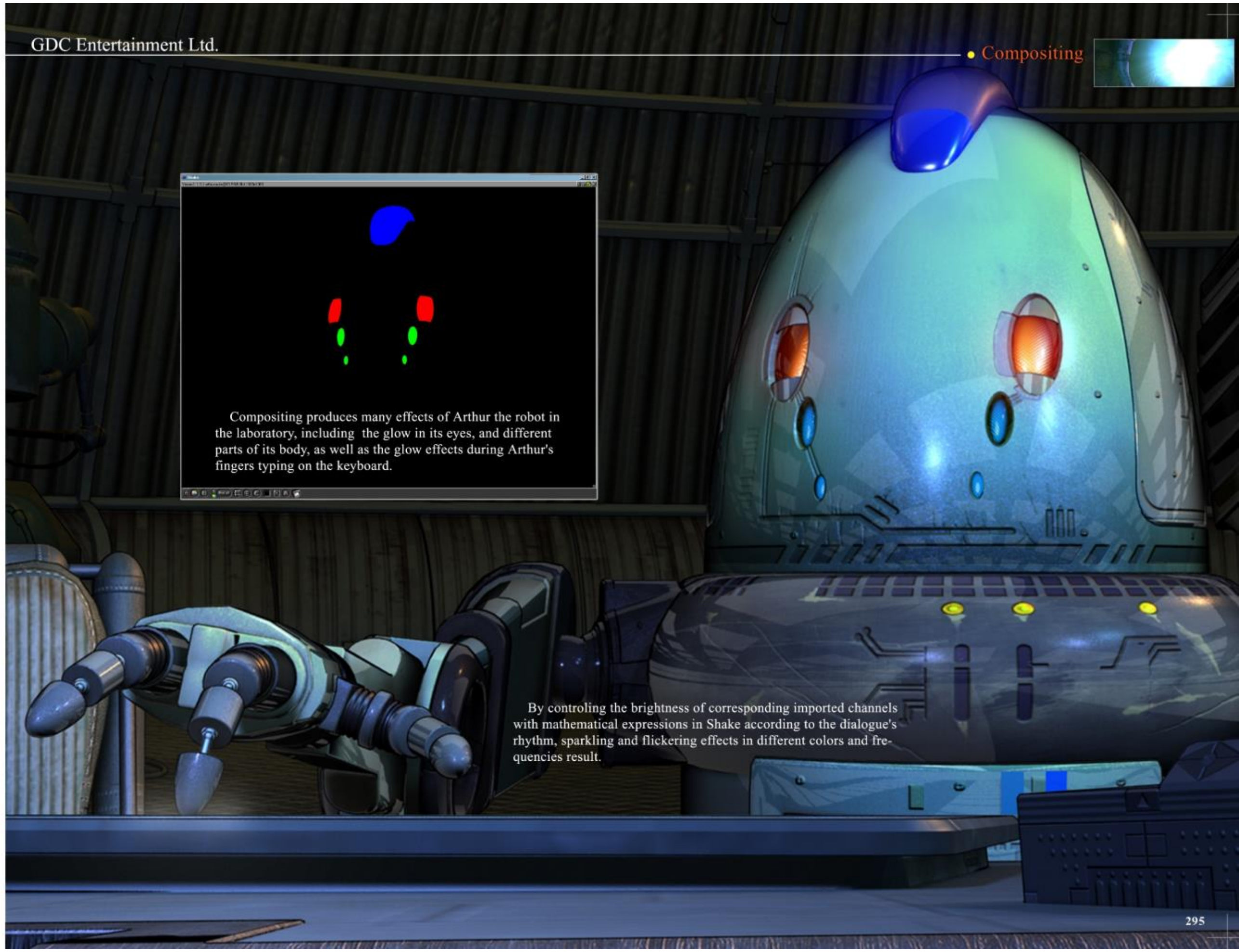
• • Compositing

Compositing in post production is the mixing of all the multi-layered elements produced by each department in CG movie production.
In short, it is the process of combining all elements into one image.
It differs greatly form animaiton production processes purely in the 3D realm.
Compositing cannot work out of thin air; it must use existing elements as its basis and puts them together.
Besides basic compositing of elements, it can refine and retouch the images which is essential to the special effects in a movie.





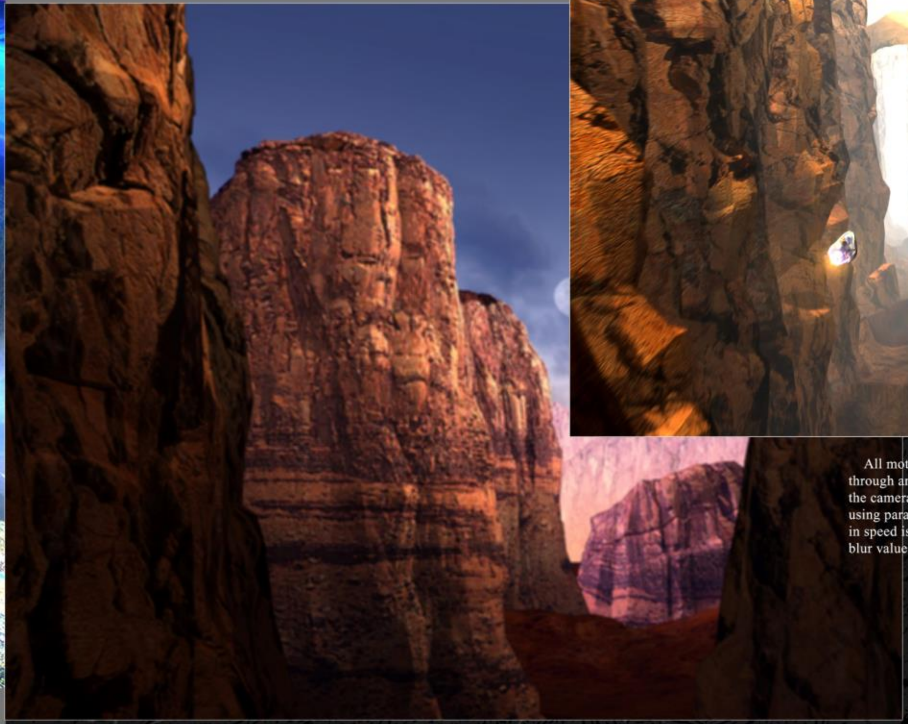
Compositors also calibrate the color of images, deform their geometry, create depth of field, duplicate of crowd members, extend large backgrounds, even repair images if necessary.
Through these works, compositing completes every shot's reality and aesthetic.
Because of the importance and widespread applicability of compositing in movie production, this techique has become as essential as 3D CG and indispensable in movie productions everywhere now.

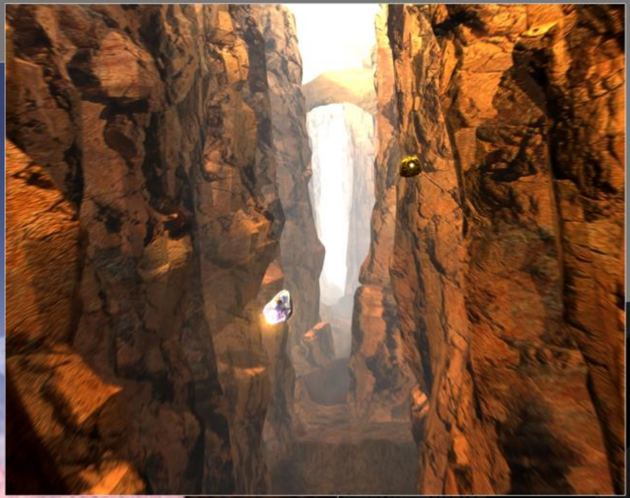


Compositing produces many effects of Arthur the robot in the laboratory, including the glow in its eyes, and different parts of its body, as well as the glow effects during Arthur's fingers typing on the keyboard.

By controling the brightness of corresponding imported channels with mathematical expressions in Shake according to the dialogue's rhythm, sparkling and flickering effects in different colors and frequencies result.

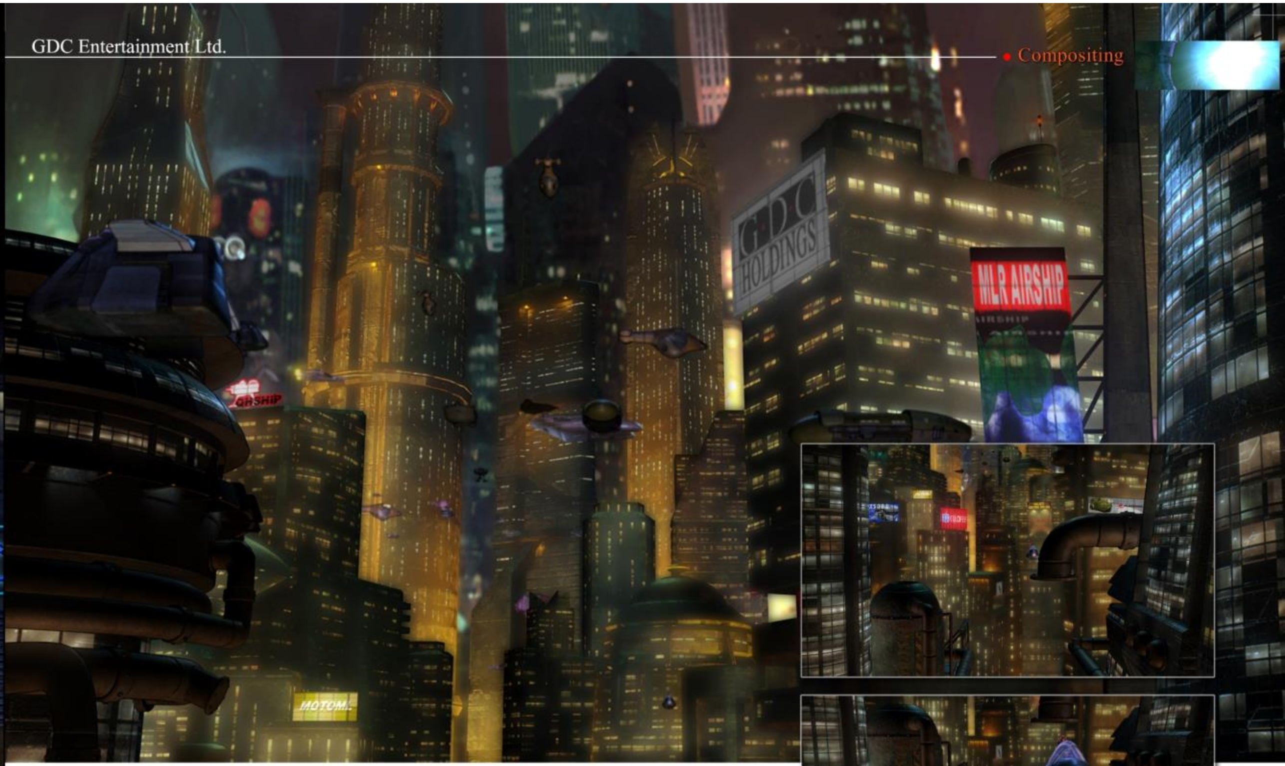
In the Spaceship chasing scene, floating dust particles in the space is duplicated repeatedly using a single frame of meteorite material. These particles are animated in Shake. A cloud plug-in of is used to produce the nebula effect in deep space. Human in the spaceship is treated with special lighting and the color of the human's hair is adjusted and amended in compositing.





All motion blurs of the spaceships flying through and the wall of the canyons passing by the camera quickly are added in compositing using parameters rendered in MAYA.Difference in speed is achieved by adjusting this motion-blur value.

Layering the shots by logically analysing them, and the Z-depth channels rendered by MAYA are key to compositing depth of field effects.In some large scenes with lots of elements, the adding of Atmospheric (Aerial) perspective is carefully handled in compositing. Objects far away are blended into the air to seperate the color of people and buildings near the camera from those far away.



This is a long shot with 646 frames, lasting for more than 20 second. Camera cranes down from the top of the buildings down to the ground.

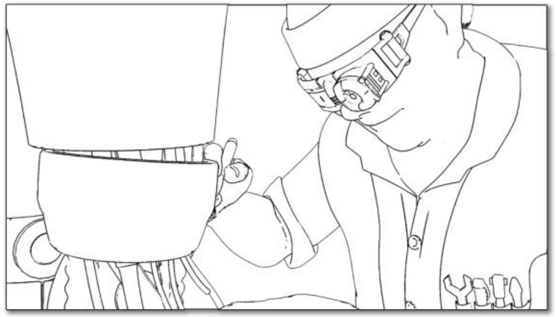
Not only buidings need to be composited, crowds of human on the streets, flying spaceships in the air, and lighting effects of the buildings are also composited in compositing when the camera reaches the ground.

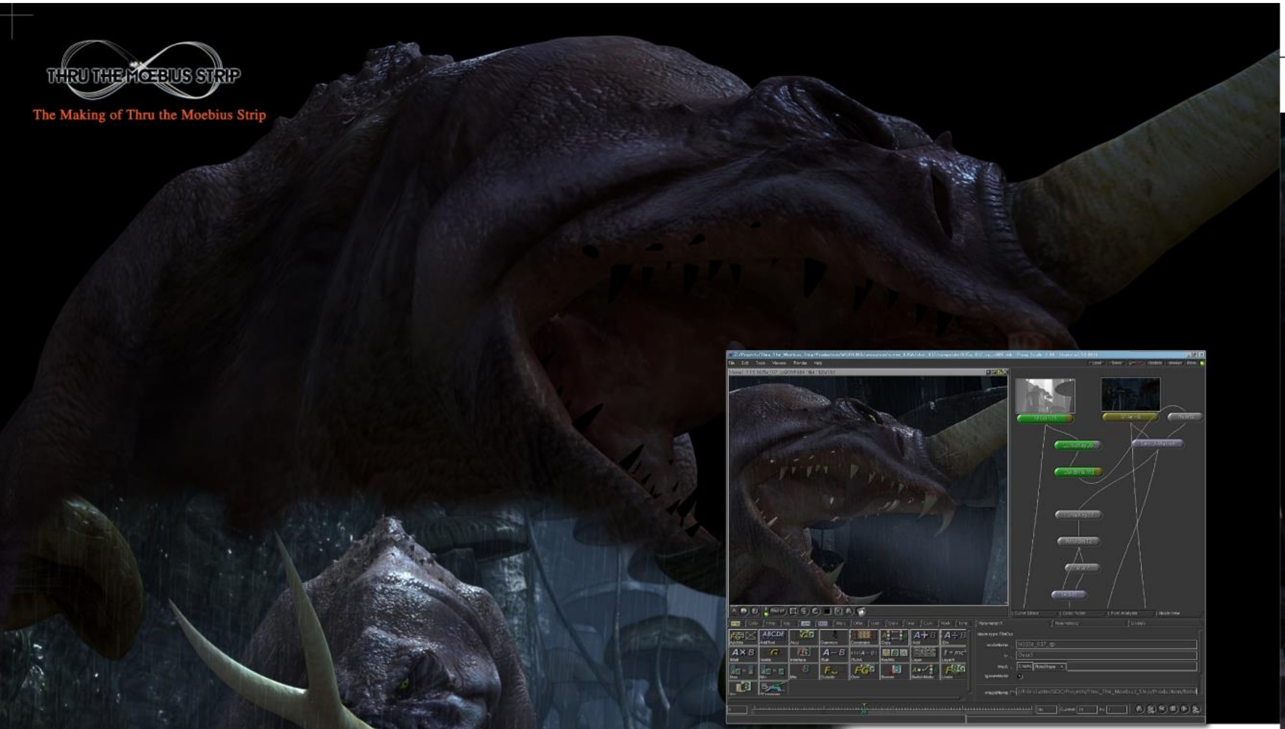
The difficulty here is the value of motionblur has to be large enough to prevent flickering of the picture while small enough to allow everything to be seen clearly.

The final compositing effect is highly satisfying.

In planning this shot's layering, the neon lights of the shops are rendered individually. By using Shake to add the sparkling effect and glow effect, the color of the neon lights can be adjusted easily, ensuring the best final result.


In Shake, Compositing Team uses a separate channel for lines to make the color of the outlines same as the image, darkening the color from the image to create a rich lines effect.





Since this scene happens in the mushroom forest, it is difficult to achieve continuity in the final rendering effect of lighting and texture in each shot. There is a lot of works on color timing in this scene by compositors.

Highlight on the skin of the alien rhinoceros is adjusted in compoisiting to ensure the texture of the skin looks wet because of rain.

In the mushroom forest, the layer of the rain, river and the rain splash rebounding from the ground are adjusted in compositing.

In day time, mushroom forest also need to look rich in layers. Using Z-depth and lightfog information rendered in Maya, better layering in compositing the mushroom forest makes human characters in the shots stand out more.

The shadow on the ground of human is layered individually using the shadow channel. Compositing Team can create greater differences between the color of the shadow if neccessary so as to easily adjust and control the tone of the shot.

Crowd compositing not only needs the objects of the crowd, it also needs channels for the crowd's Z-depth (Z-channel) and the crowd's shadow.

Through crowd channel, the depth of field of the crowd can match with the depth of field of the background in compositing to integrate the characters far away into the environment.

When the camera trucks in or out for a long distance, the crowd animation also needs the value of Z-channel to get harmonious effect in changes in compositing.

When King Tor forces Allana to open the Portal, it emits a magical and mysterious power. Compositors add Glow to the flashing element in the Portal's center.

In the deformation of the background, adjusting the attributes of Displace can illustrate the fantastic and mysterious background. By strengthening the intensity of the light beam created using Rblur, compositing makes the shot more attractive.

In the chasing scene inside the castle, there is a large difference between the cold and warm tone indoor and outdoor. Compositors separates the characters and the background layers and adjust the color of each individually to signify the changes in environment.

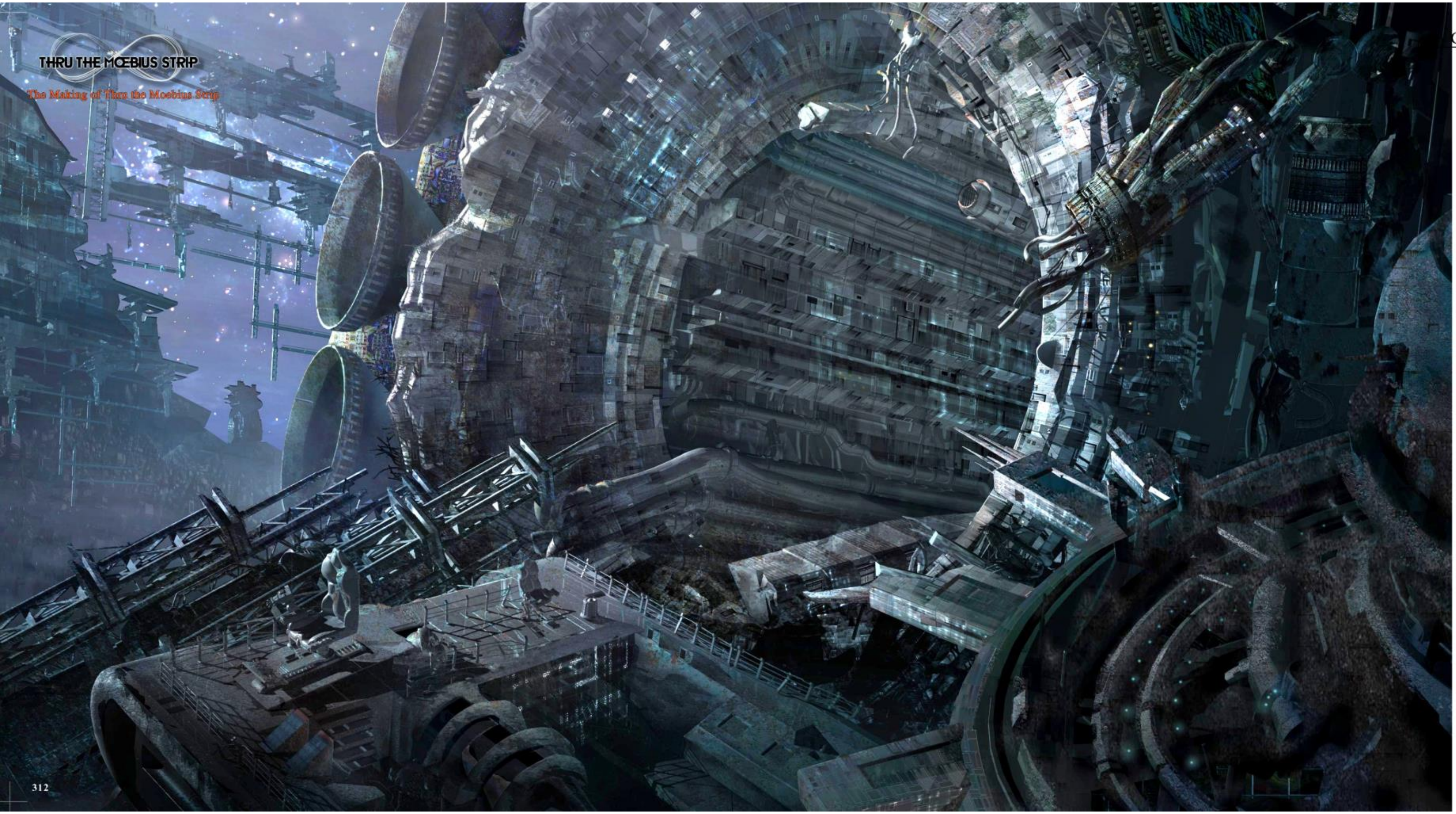
Exaggerated motionblur value adds to the feel of urgency and velocity.

The color of the crowd scene created directly by MAYA, from far away to close-up, is very saturated. Besides adjusting the depth of field of the background, it is most important for the compositors to integrate the crowd into the environment.

Shake has a very good color calibration system and meanwhile use the environmental mist on the crowd. Using a self-made matte, part of the crowd can be put in the environment shadow with a more real and natural effect.

In the banquet scene, the fighting crowd needs to be adjusted in layers in compositing. Some characters' motionblur are added individually.The soft light of the human hair and the steam from hot food indoor are also composited and adjusted in detail.

In a big scene, the lighting and environment tone all elements, including crowds of characters or spaceship, must be separated in detail, and unify. The compositing team uses Z-depth to adjust the scene's sense of depth as a whole.



A gentle and happy scene needs warm color to express the mood. When every shot is under color calibration in compositing, every shot breakdown of a scene is rendered into images and put together for comparsion so as to ensure the right atmosphere and continuity in color tone.

Compositing of the battle scene is the biggest challenge for Compositing Team. Almost all the elements found in this shot and required special effects can be found in one shot at the same time.All the flame, explosion, smog, dust blown up by the crowd of troops, and the cameraShake needed by crashing and hitting of spaceships, are all done in compositing.

There are too many elements in the battle scene. its color the most difficult to unify. So, colorcorrect has a very important function here.

King Tor's battleship are widespread in the sky. Compositing has not only to make the depth of field of the battleships both near and far away from the camera, but also the atmospher of the vigor of the attack and seriousness of the battle.

The Moebius Portal through which Simon goes to the alien world, is the first shot showing a magical passage connecting two worlds in the movie.

In the background of the entrance of the portal, the mushrooms of the alien world change their shapes to the energy released from the portal. The light from the portal sparkles because of the changes in energy, resulting in a fantastical effect. These lights and effect in the background are achieved by Rblur and Displace in Shake.

Compositing

SC004 of the movie is one of difficult scene for compositing. To achieve depth of field, many layers of rain are added, including the water on the mushroom, the droplets from the edge of the mushroom, the water on Simon's body and the bouncing water splash.
The light beams of the bottom part of the platfrom and the light beams from the torch, the fluorescence points of the alien flying insects are all produced through processing the Model Channel from Maya in compositing, rather than in lighting.
The floating mist of the shot is made by animating parameters in Shake directly.

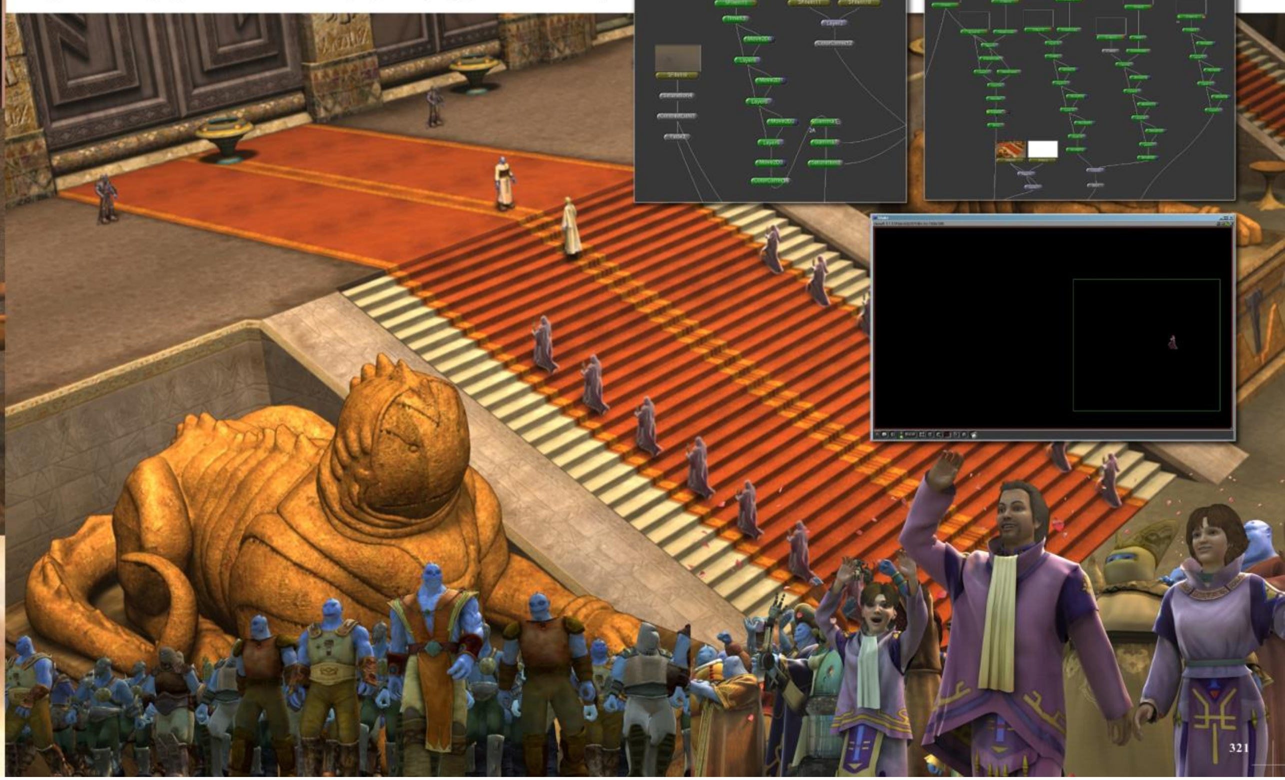
The Grandness of the battle scene and the mood with widespread smog are composited through adjustment in the color tone of depth of field, compoisiting of smoke and fire, the depth of crowd and battleships, camera shake so as to achieve perfect effect.

When Ragis wins over King Tor, Ragis's sword is stabbed into the ground followed by the release of dazzling light beam. The light beam spreads and rises through the sky. Once the light beam releases and touches the ground, it affects the surrounding characters and mushroom forests. The higlight channel of the characters and the mushroom forest is used in the compositing. Furthermore, the expressive control of the highlight's creation, change and intensity in the brightness attributes to make the whole background are lighted under the magical sword light.

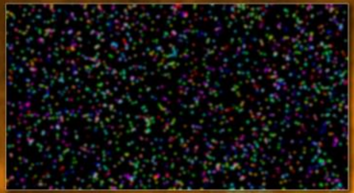
When Ragis is chasing King Tor, the color of this scene is warm and there is a lot of mist effects in the forest. Through the single layer of mist and high density Zdepth, the multi-layer effect of mist increases the depth of field of the shot.

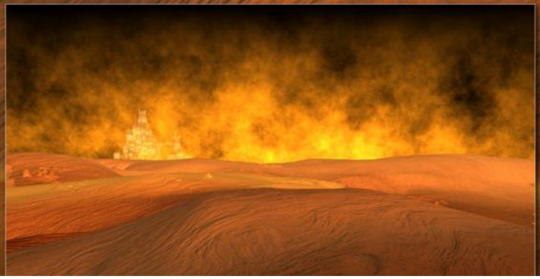
Adjusting the detail of the reflection of the castle in the water, the color of the water surface and the reflection of the water from the sky are done so as to achieve standard color tone.

The crowd of servant following Allana up to stage are the duplication of one single character to a line in Shake. Through the function of Time, the duplicated characters are inserted into the shot in sequences according to requests.Their walking paths are the same and the time period for spliting of the queue has to be rightly calcuted so as to make every duplicated going upstair in order and tidily.



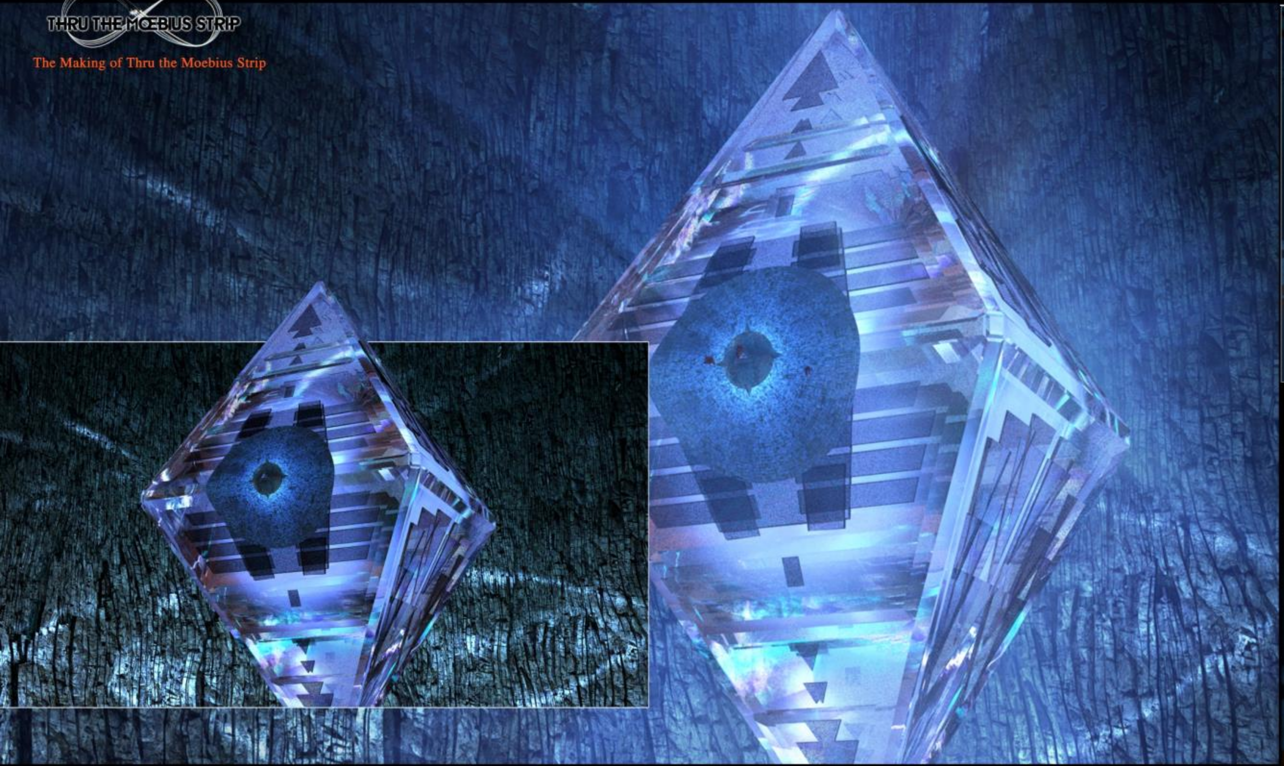
When King Tor arrives at a strange planet from the Portal and stands on a dune, the castle in far away seems to a fantasy.
Noise is added through the Noise Channel in Shake and the background key-in point of Displace producing a a fantastical desert scene directly.





• Compositing

When spaceships and birds fly to the silent space from a place with heavy rainstorm and shining, this quiet and beautiful cloud layer is done layer by layer in compositing. The interactive relationship between the cloud layers and the moment when the spaceships and birds breaking through the sky, the spread and change of cloud is adjusted in Shake detailedly. The motionblur is further amended in compositing.



The light and the color of the crsystals rendered in Maya are not very satisfying. It has to be adjusted in colorcorrect to get a ever-changing light of crystals. When spaceship flies near the entrance of the crystals, a clearer stopping point is created for the spaceship so not to make it submerged under the bright light. This is done by 2DMove in Shake.

This is a long shot and the crowd is single layered. The candles hold by the characters are the key elements of compositing of this shot.
Candles are rendered in Maya as a non-moving object with fire flame color only. This element is used in compositing, through duplication, layering and deformation to create effects such as the glow of fire flame of candles, the highlight of the center of flame, and the distorted flickering flame.

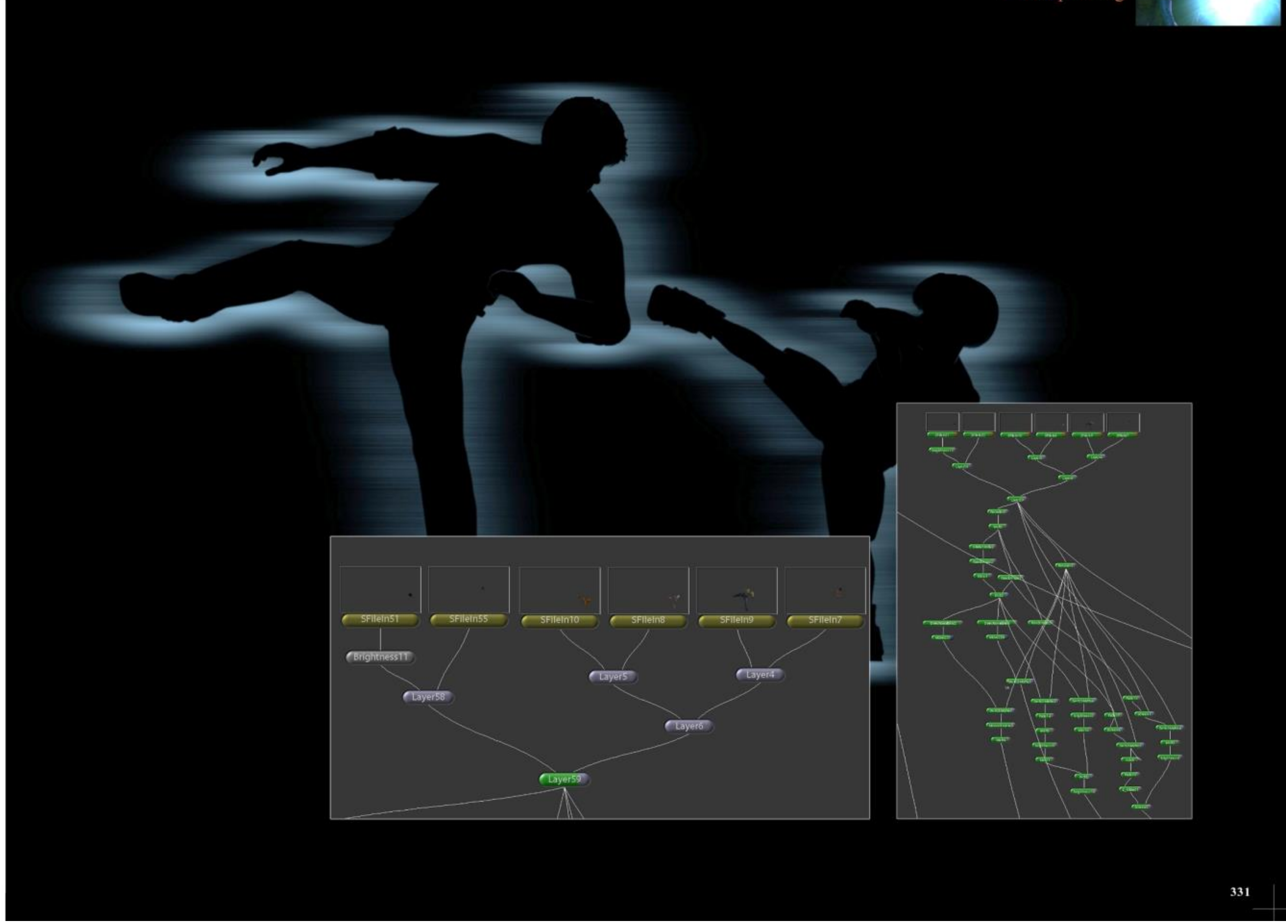
The flame's lighting effects on the characters lighted are then finely tuned.
The lighted part of the characters are extracted by Shake and given the same color as the fire flame, with intensity variation same as the flame.

The crystals express themselves differently in different scenes in the movie. Their highlights, refractions and Glow are all process and adjusted in compositing.
Under different lighting conditions, the cystals have subtle changes always done in the compositing stage. When the biggest crystals of Shepway's magic staff rotates, the effects of the light on the characters are especially emphasized in compositing.

The scene in the chamber filled with murderous atmosphere calls for not only color adjustments and standardizing, but also careful attention to the dark blue tone on the skin of the characters. The shadow and light from the sword hold by King Tor is particularlly adjusted.

The holographic images displayed when Jac is thinking of the moments in his childhood with Simon are completed in compositing. Based on the figures of Simon and Jac rendered in Maya, the halo and unstable and noisy light waves are produced.
To make the scene look more real, a transparency effect was introduce when Jac's hand touches the hologram.

The leaves outside the window are done by a single layer of painteffect in Maya. The Compositing Team layers it into foliage with depth.
The shadow of the leaves ron the window frame is also created in compositing using a channel for the leaves.

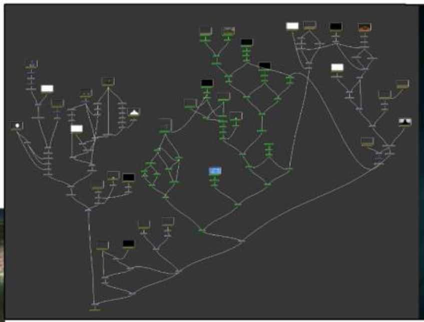


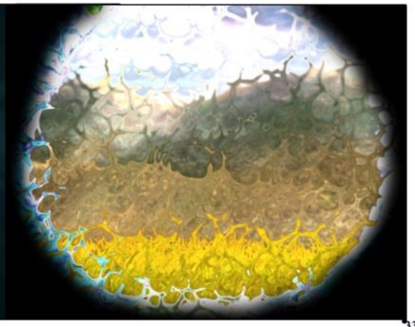
THRU THE MOEBIUS STRIP

The Making of Thru the Moebius Strip

When Simon tries to go home from the alien world for the first time with Shepway's help through the Portal there, its looks more mysterious and powerful.

Compositors uses basic elements from the Special Effect Team to create in Shake the light details of the Portal and the changes and blurring of the field in the background. These effects are done mainly with the Displace function in Shake.





When Simon is talking to Jac in the Portal, it is very unstable. Compositors uses the particle interference channel done by Special Effect Team to create the fragmentation of Simon's image.

The layering of the Portal in this scene is very complicated and a lot of nodes are used, including the Portal's lighting on Jac. All these effects are intensified in compositing.

The reflecting light and transparancy of the glass of the biosphere is controlled and modified to a small extent in compositing.

The top light of the high speed rotating spaceships and the flame of its back are undergoing in compositing later. In the meanwhile, its intensity and lighting effect on the spaceship itself is carefully controlled.

Production pipeline of Editing Department

2. Analyse shot breakdown of the storyboard provided by Storyboard department and prepare to edit the animatics.

   The correct naming of files,

   for example: Sc012_s001_P01_V_

   Sc012_s001_P02_V_

   Sc012_s001_P03_V_

   Sc012_s002_P01_V_

3. -Listen to the recorded movie's dialogue and check it,
   edit the animatics according to dialogue and story,
   watch and amend the animatics repeatedly, presents a full general idea of the movie in film language to producer and director who use it to make final decisions.
   -add timecode in the finalized animatics, lock the timing and length of shots, to go into production or the next stage.

4. Layout produces each shot according to the length and timing of shots in the animatics prodivded by the Editing department.
   The finished layout is edited,
   and the file is output as layout reels for next stage in production.
   at the same time, Music and Sound departments adds music and sound effects based on the animatics so as to create the atmosphere. It can give producer a complete impression.

5. Animators animates according to shots and clips provided by the Layout Team.
   Editors updates the layout_reels by shots and by scenes.
   Editors modifie the edit according to the director's comment and output it as Animation_reels with timecode.

   The correct naming of the files: 012_001_an.mov

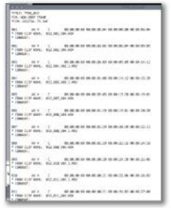
   012_002_an.mov

   012_003_an.mov

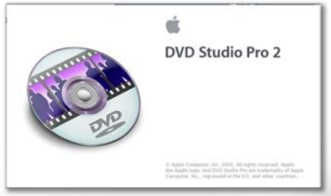
6.Backup Animation_reels after editing it and organizing its documentations. Editors receives the daily files from compositors everyday.
Editors may need to add images, text and timecode for the update of show_reels, which will be com mented on by the Director or Visual Effect Supervisor.
After they approve the shots, footages without slates or text will be edited into working_reels as the final result.

7. Editors and director finish the last step and save the finalized file as project file, and copy it to another system to extract the approved files without slates or text.

8. The finalized files will reconnect offline media files based on the files' names.
Therefore, to a editor, the managment and naming of file is extremely important.
Sound effects and music is imported for director's



9. An EDL, a.k.a. Editing Decision List, will be outputed finally.checking and signature. Then they goes into mixing.



10. Output for making DVD

AIA

Witin the production, AIA (Asset Integrity Assurances) was in charge of the file assets, quality control, the pipeline and the problems that occur between departments.

Quality Control to insure the files in production meet with the requirements of departments later in the pipeline.

Codify standards and regulations of the different departments before production."

Standards and Regulations

Demand files and assets submitted by different departments to be checked, up to AIA's standards."

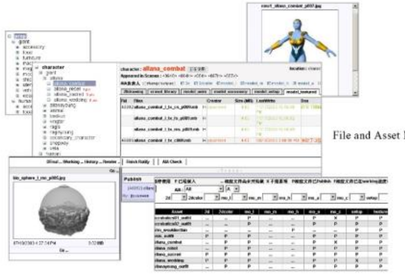
File Requirements

Files with errors are given back for retakes

Discrepancy Rate of Files and Quality Control

Resource Management According to the characteristics of the pipeline, AIA designs "file and asset managing system", to control the progress of files in real time.

In the asset production stage,
it checks the production and progress on the characters,
sets and props on the database to get the different files needed.

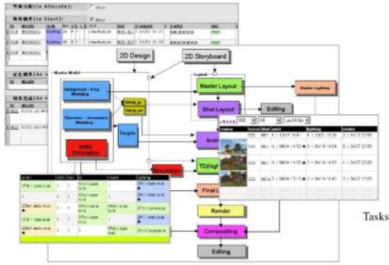


File and Asset Managing System -- Asset

In the sequence/shot production stage,
the file and asset managing system reflects the preparation status of the required assets for each sequence, as well as the status of every shot in the every department.

File and Asset Managing System -- Scene

Pipeline Supervision One of the most important jobs of AIA is to make sure the files and assets are circulating effectively in the pipeline between production departments. When problems occur, it cooperates with the related creator and personel to solve them. We designed "Tasks in-progress supervising system" to handle the status of each department within the production pipeline. This system is important for management of both time and workloads.



Tasks in-progress Supervising System

The prodution of a CG movie is a enormous and complicated process. Over three years of experience working on movies, AIA has collected precious experience, defined regulations for each department, improved methods of controlling the pipeline and has done massive amounts of specific work in order to make sure the quality of the movies, files and assets management, and pipeline supervision are effectively realize.

Animation Movie Data Center System

Summary:

The artistic process of producing an animated movie is a very detailed and complicated. Massive amounts of design prints and instruction files are collected, sorted, prepared and distributed in pre-production. The work-in-progress products flowing through the pipeline are embodied as tens of thousands of files in different formats. They are numerous, updated really frequently, distributed widely and hard to follow. To leverage database technology against the lack an effective way for the users to exchange and share such data, "Animated movies central data system" is a complete and mature system specifically designed and developed to meet such professional demands.

Characteristics:

It is a typical three-tiers web database application based on a client-server system. Its front end is a browser client for the crew and the director providing a complete platform for browsing/searching data, getting and publishing working files, communicating approvals/comments, which are all important details for doing actual works. The middle tier is the character / scene / set realation analysis of the movie, asset distribution, files tracking, production pipeline simulation and business logic. The back end is a set of databases of designs, references, work-in-progress, progress, schedules, plans, task distribution, etc., all related to the production.

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This system:

1) Data file distribution: The files that needed to be organized are on the local network. They need to be gathered and put on database server, and copied for saving and orgranization purposes.

2) Data format: the production pipeline decides what format should be used for the files from different stages and procedures within production to be saved. THis includes 2-D design prints, animation previews, post-middle modeling files and high-resolution rendered files. This system has the desired structure to be utilized in such enrironment.

3) Frequent updates: There are hundreds of procution files and communication files created everyday. The system has taken this into consideration, through actual updates and automatic data orgranization to orgranize the information.

We use a networked client/server structure to develope an office automation (OA) and management information systems (MIS) for animated movie production. The modular design of its sub-systems of functions communicates by standard protocols. Running on a mature system platform, it is developed using a protocycle methodology to make it practical, convenient and use-friendly.

Using the company's existing network environment, the system brings to light system integration and asset sharing; it lubricates coordination among departments and improved efficiency and quality of work by automation. The application is designed with the overall system as well as the interconnectivity of subsystems in mind to ensure asset uniqueness, accuracy and completeness.

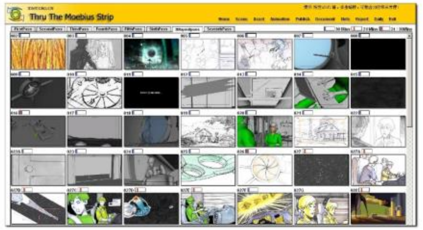
By collecting accurrately data from the production on time, the system orgranizes production information into charts to reflect the progress, status, and quality of the production process for better control.

Systems of key indicators and decision aids links projection management and the production crew tightly, and provide real-time data as basis for planning decisions.

The system gains stability and practicality by abstracting the production pipeline of a animated movie, and systematizes it with an eye on the future for even bigger projects.

Animated movie central data system summary:

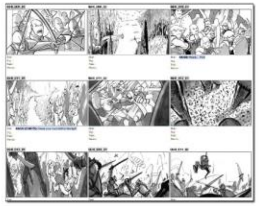
How do you publish a continuely improving script? How can the production crew work according to the design plan? How are various department connected in the production pipeline? How does the work-in-progress and the director feedback on each other? Let's use Thru the Moebius Strip as an example and answers these questions one by one.



1) System for publishing and storing data files of the movie script, scenes, sets, character descriptions

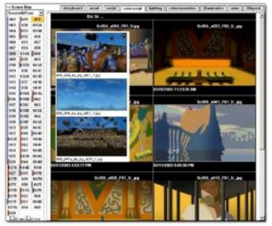
All version of of the script from the caliest one can be founded here, with detailed links to corresponding location and character descriptions.

2) System for recording and updating storyboards, dialogues and footnotes



Storyboards created according to the requirements of the director are arranged here according to scene and shots into a sequential "comic strip" with dialogues and footnotes. The main function of this module provides a foundation for production.

3) Search system for scene, sets, characters and props design



What details does this model has? What is its material? How it is positioned? In what environment? The crew can find the answers here.

In which are the sequence? Who needs to use what kind of data as references? The answers are here.

4) System for publishing, comparing, evaluating, exchanging and impoving model and animation files in different stages of the production

With the preparations above, the crew can go into production smoothly. This is the core of the central data system. Its main functions include file distribution, quality control, work exchange, retake comments, and so on.

All the files have to be checked and approved here. Friendly interface helps supervisors check different files in different stage of production more conveniently, one stage after another, and everyone is clear about their own task, thus can work better with others, improving efficiency, and at the same time facilitating file management.

One step after another, this way, everyone is then clear about their own mission. They could work better with other people, improve the effectiveness of the process and the management of the files and data.

5) Query system for the position of the work-in-progress files, its publishing time, creator, supervisor, version number allows timely supervisory and directorial comments so that the department next in the pipeline gets the file it needs quickly.

Overall decision makers - the producers, directors and supervisors - in a production perform serious and meticulous considerations. How can they quickly evaluate if the products are up to standards? This is the question addressed by this module - classifications, co-ordination and preparations for the next department in the

As time goes by, the work in a production changes, and the plans need to be adjusted accordingly. This module as a platform for task exchange provides what the crew needs to understand the progress.

All artists want the same - their work to be perfect - but the standards for perfection are not. So, there must be a uniform standard for a movie production to be completed smoothly.

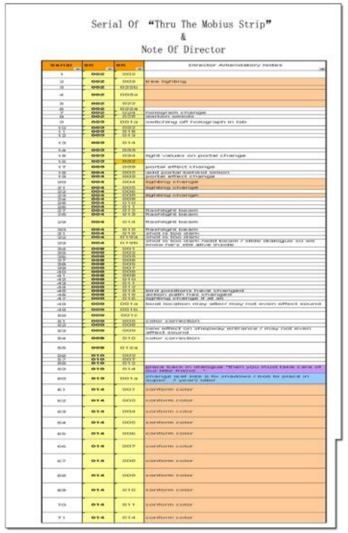
PPs

Sequencing Shots

PPS needs to list all the shots in sequence in a form based on the storyboard in movie production.

The form can let us not only understand the sequence of the shot, but also the shots needing amendments or deletion, etc.
If necessary, the form will also include director's comments on retake shots so that everyone know the shots' status which tracking it.

PPS co-operate with AIA closely to upload the images of shots in sequence to the datebase, which can be accessed by all production crew memebers for reference.
The images on the database show intuitively the current status of every shot.
The grey images have not yet been lit by the lighting department.
Color images are finished by the lighting or compositing teams.
The above figure show single frame images listed on the database according to shot sequence.



Schedule

he schedule for certain shots or scenes or sections of the movie is arranged according to the movie's deadline with purpose and reason.
This schedule shows the plan for a certain period in production (e.g. finishing in 3 months 20 minutes of footages or 500 shots). Using this form, the quantity of shot in production, from animation to later steps in pipeline, can be monitored.

Tracking Tasks

One of the job task of PPS Team is to control the distribution of shots into different production areas. PPS team has to be fully understand every shot's detail which can help them to do tracking more efficiently.
Figure above shows the tracking system through Excel file which is not that efficient.
Figure below is to turn the Excel file into online database tracking system.

PPS Team's main job is to distribute shots for production based the movie's production schedule.
PPS Team has to co-operate with AIA Team to figure out which shots should be put for next stage production and allocated to corresponding departments.
PPS Team needs to track closely with the progress of shots. If any shot lags behind the schedule, PPS Team has to inform related departments about the problem and ensure these shots transferred to next stage for production as soon as possible with minimum delay.
Figure above shows the tracking system through Excel file which is not that efficient.
Figure below is to turn the Excel file into online database tracking system.

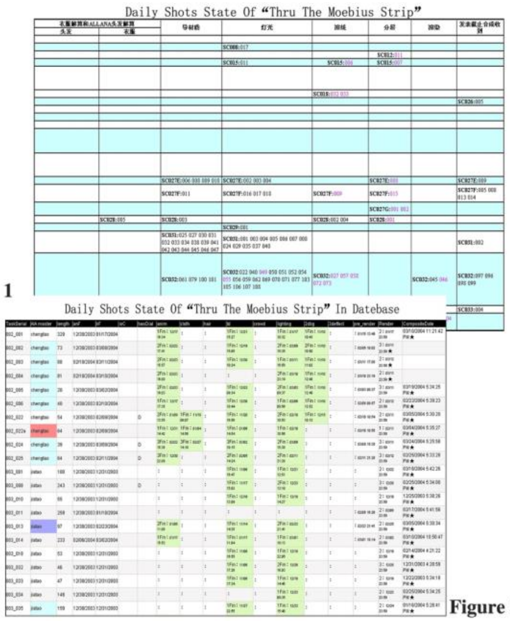


Figure 1

Figure 2

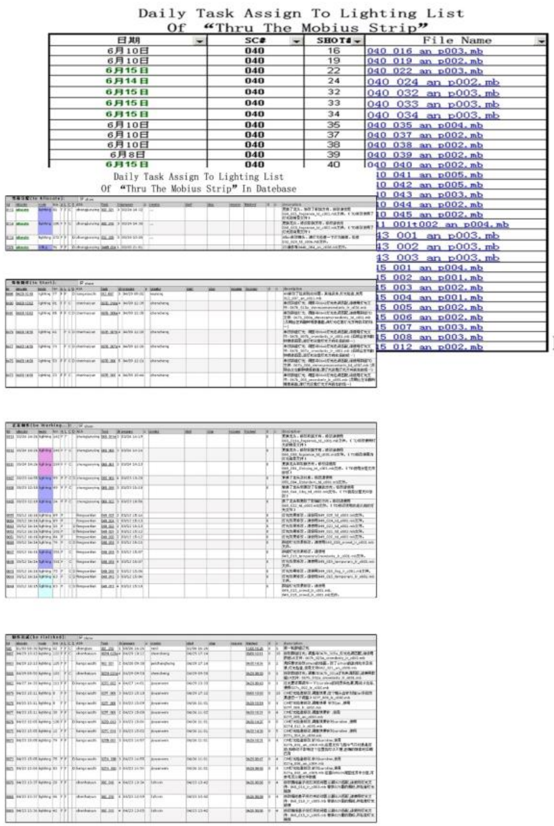


Figure 3

Crowd animation is one of the selling points of this movie.
According to the storyboard and crowd's references in early stage of production,
we have already expected that there will be a lot of crowd scenes in the movie (crowd 001, crowd 002, crowd 003).
There are shots like, crowd keeping away from the blocks in the mushroom forest and fighting with each other, etc.
Crowd scene is created through duplicating one body into a large numbers.
The key is to ensure every duplicated body has his own characteristic
so that he can be differentiated from the original one.
The purpose is not to let audience see any duplication of body in the crowd scene in every frame.
To make every element is different from one another, we can base on three areas:

1) Model (Body & Weapon)

2) Texture

3) Animation

▲ Each type of soldier has three different kinds of figures and texture colors

At first, we write a script which can adjust the height and fatness of a body and add clothes and weapons easily. However, this involves too many changes which greatly increase the workload of crowd animation since animation is produced based on the figure of the body and the weapon he holds. Therfore, we finally decide to use 3 models with fixed figures for kingtor's troops and rebel troops. First, we design 8 sets of costumes and weapons (crowd 004).

For each set of costume, we use three different body figures to match with it - fat and short, standard, thin and tall (crowd 005).
Then, 24 sets of different models are resulted.

We differentiate these 3 models even more by adding various color and texture (crowd 005).Animation Team will finally create 12 kinds of animation subject to the shots so as to enrich the crowd effects.Although we relatively reduce the number of faces (2000 to 5000 faces) in crowd models,we still cannot use these models directly to build the crowd in most cases. It will be a waste to use these models directly becasue soldiers only take up of few pixels in some shots with a large number of soldiers (exceeding 10,000).

In this case, we will first render the models with animation into sequence frames which are used to replace models. It can lower the workload in final rendering. When producing crowd animation shots, most of the time is spent on positioning the crowd because it is formed according to specific phalanx.We usually use particle system to position the crowd and expression to let particle stick to the ground. The script we wrote includes using Artisan Paint on the ground to symbolize the distribution of particle: black equals high density; white equals unmanned; grey equals the gradation between high density and unmanned (crowd 006).

Then, through expression, the particles can move when still adhering to the ground or walk forward following the arrow symbols on the ground (crowd 007) or give every particle their own moving path to go forward (crowd 008).

Finally, we will replace every particle into models or sequence frames for the shot.The animation of models or the starting frame of sequence frame will add particles so that we can diversify the effect of crowd elements.We need to divide crowd scene into background, middleground and foreground.For background, we complete it with sequence images; for middleground, we use models; for foreground, animators will put high resolution models into animation.

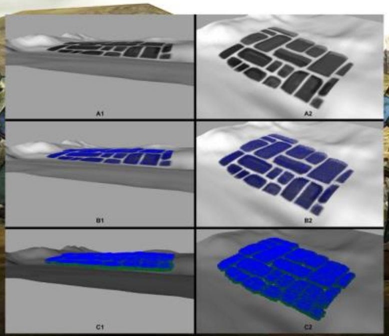
We will render color and alpha channel, shading channel and depth channel (distance from camera) when we do layered rendering. Depth channel can be used by post production team to achieve depth-of-field effects (blurring of out-of-focus elements).Crowd 009 to crowd 014 are shots rendered with multi-layered elements and gone through final compositing to produce crowd 015.

Design of military plan of Kingtor's troop

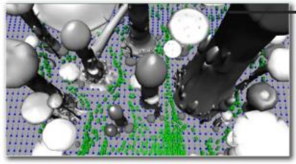
Design of two teams of assaulting giant soldiers from the POV of human beings

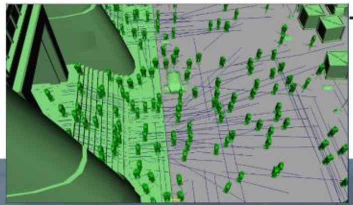
Color design of two teams of soldiers preparing to attack one anoth

Design of three models of eight types of soldiers of Kingtor's troop and rebel troop



A1,A2 - Use color on the ground to indicate crowd distribution (Black - high density, White - unmanned)
B1,B2 - Create particle system (can limit the distances between particles)
C1,C2 - Replace every particle by sprite





Ground and Sky

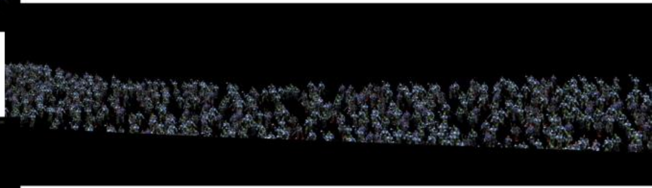
Each crowd element has its own NURBs curve (blue line) to indicate the moving path

In testing, we use green boxes to represent crowd element; blue arrows to indicate crowd moving direction

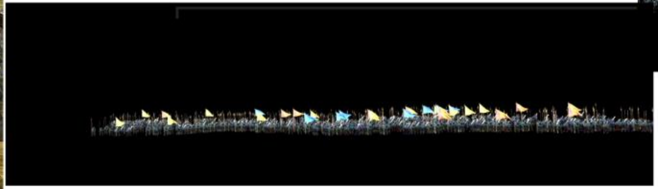
Crowds of airships and birds in the sky

In the foreground, animation is directly done by the Animation Team with high resolution models

In the middleground, particle system is used to let each particle choose randomly a forward running low resolution model, and a animation cycle offset



Soldiers further back in middleground are replaced by a particle system of image sequences of forward running soldiers.



In the background, particle system let each particle choose randomly image sequence of standing soldiers. Image sequence of flying flag are separate from the soliders.

Rendering

1. The process of layering of the images

A, Layering according to the different parts
According to different backgrounds and models and their covering relationship, a file is divided into numerous parts for rendering and this process also facilitates amendment in post-prodcution, as in figure.

Layering according to different channels

Diffuse

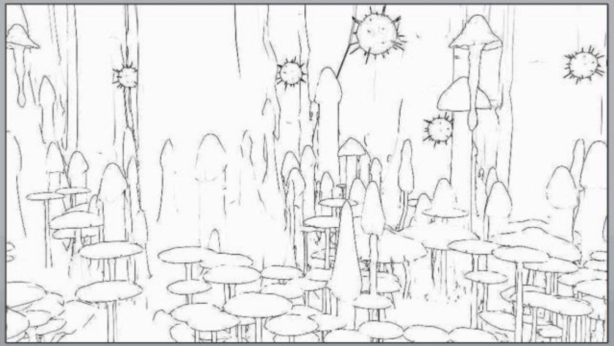
Shadow<Alpha>

Specular

B, Layering according to different channels

Another layering method is to break down the original image into several different channels: highlight channel, shadow channel, color channel, brightness channel and deliver these channels to post production departments for adjustment and compositing.

Color



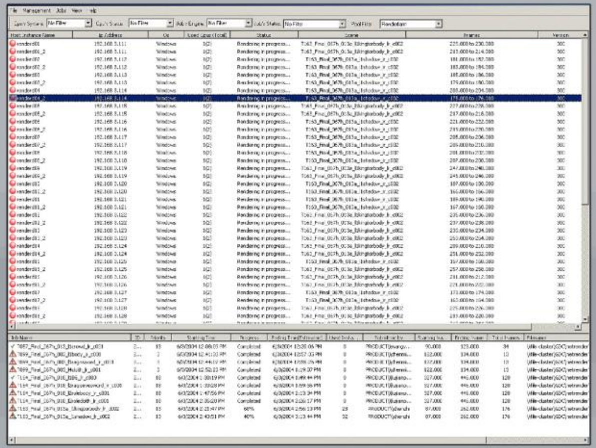
Render contour line

In reality, both methods are used in layering. In the movie, we also create contour line as a layer of raw element to be composited.

2. Render Farm
The composition of IDMT's Render Farm
80 DELL Poweredge1650 (Dual Xeon 1.8-2.8G with 4G RAM)
30 Lenovo R510 3112 (Dual Xeon 3G with 4G RAM)
250+ Workstations (join the Farm when idle)

Rander Farm

When the file is completed, production staff will transfer it to Render Farm for rendering.



Network Rendering Management

System Assets

1. Workstation

150+ DELL Precision 530
Windows 2000 Professional
Dual-Intel Xeon 2.4 G Processors
WildCat 6110 Graphics Card
2GB RAM
Dual Monitors

2 . Saving Files

More than 14TB online storage space for files used in movie production. One 4TB and one 8TB Tape Library are used for offline files and data backup.
Each document server can prodive 2 4GB convergence network interface. Some of the workstations and servers with special needs directly use the Fibre Channel based Storage Area Networks.

3. Network

All workstation are connected to the gigabit network via the Digital China DCRS-7115 router switch.