

The details of [Kitties in Wonderland], the regrets of the production with tips of how to improve an iGEM team documentary

--Written by Rocky Yu

*Tip 1: Because filming is an art, some dramatic plots and artistic ways of expression can be used, as long as the story is almost real.

Significance of the documentary: Contribute to win 'the best product design' or 'the best integrated human practice' special prizes.

Message: We use our project to benefit the stray cat rescue by proposing a new solution to the problem, and we improved it through hard work as well as communication.

PART 1: the documentary plan with the storyboard

Opening:

1. Use the meme of 'World of Wonder' and FBI warning at the beginning of every episode.
2. Choose an episode (Episode 1 is good) to replace it with a compilation for the intro of the song 'pop team epic', the frames should be:
 - a. Previously on the last episode
 - b. Frames about Ms. Li's rescue team
 - c. Funny clips about cats and the cat shelter

Transition between the opening and the feature movie:

1. Gradient black transition
2. The opening of P1 fades in transparency, clarity, the sound volume as well as speed. After the screen blacks out, add some 'nyan' sounds that appear gradually, as if calling the dead from their afterlives. Then the blackout transits to the featured movie through the special effects of 'opening the eyelids'.

Featured movie ('P' means Episode):

*Tip 2: Generally, it's a good way to draw out the documentary plan in a form that includes multiple factors of filming like Sound effects, storyboard, narration, subtitles and extra notes. The 'storyboard' tells you how the expected appearance of the frames is, drawing is sometimes required in this section, especially when you are planning for a section of interview. The 'Extra notes' section is for miscellaneous recording, for instance the scenario, participation, supplement for the storyboard and even inspiration about editing.

Worked example: rough plan for P0, in this case the drawing is not on it.

P0: This is a special interview with Li Fenghua solely, which is separated from other episodes.

Sound effects	Storyboard	Narration	Special subtitles	Extra notes
Background music: <ul style="list-style-type: none"> Themes of 'Puella Magi Madoka Magica' Themes of 'Clannad' 	Li Fenghua's interview clips with denoising on the audio. Cut to put in some pictures and other footages at the middle.		Li Fenghua The founder of the stray cat rescue team in Beijing, who persists in rescuing the stray cats for 20 years (1998-2018).	

The rest of the documentary plan is not translated, since the essence of this part is to introduce this kind of planning.

P1: Stray cat issues

音效	分镜	旁白大意	特别字幕	备注
Van 样 ddf 访谈开头音效 加上马路的呼啸声	过渡以后视角到了马路上，很多车呼啸而过。 视角切到人行道上，有流浪猫正在走着。 (脏兮兮的姿态)	流浪猫，是一个很严重的问题	制片人，指导，队伍等 标题	

	正在翻垃圾			
	iGEM 队员讲述流浪猫问题严重	姓名+队伍里承担的角色	<ul style="list-style-type: none"> 说明流浪猫是一个问题 当前解决起来很困难，没有官方的支持 	第一部分，几乎全员参与
纳尼？	切换到猫的视角 突然转头 猫的头 p 成 die			
标准结局音效	世界变绿，to be continued			

P2: Hard work

音效	分镜	旁白大意	特别字幕	备注
	lwq 的访谈，讲述 hp 思路	Lucinda ， GreatBay_China HP 负责人		HP 思路： <ul style="list-style-type: none"> 解决流浪猫问题的方式就是 TNR 我们的项目……可以帮助到这个流程 解释 TNR 的时候每一个单词切换一个镜头 TNR 里面，T 最难
讨论的杂音	项目初期的研究。翻阅文献	But, how?		
	切成 alexis 的访谈，简单讲述我们猫乐园的具体构想以及我们的实验构想。 讲解猫薄荷的作用的时候可以用我们的摄像头捕捉到的镜头		Alexis ， GreatBay_China 总负责人	构想就是给猫提供一个好的庇护所，并且用 Nepetalactone 方便猫的抓捕。 然后提到我们项目的合成生物学部分：为什么我们想到合成荆芥内酯。（make connections）
	大家在组装初代猫箱			
	大家在做实验	However, the ways not to the Topstar in iGEM, but even to a	如果长颈鹿就要配字幕	

		successful lab project is not easy.		
	失败的胶图一个接着一个 表征的板子越堆越高，照相叠加的形式/ 或者蒙太奇的形式（录像一天，然后在中间插入板子堆高的情节）	Labomem stay together, work together, exhaust together, fail together, and depress altogether.		
	流式数据录屏，gc 出峰现场，真香现场	But eventually, all of those heartfelt emotions converge, multiply and polymerize. They burn out and become the shooting stars in the sky, vanish in a flash but are enshrined forever. Yeah, I see.		真香现场重录制/再生产

P3: Communication

音效	分镜	旁白大意	字幕	备注
	人访讲述去柴火的来龙去脉 在柴火宣讲的视频 可以插几张照片进去			
	Henry 老师，李屿老师的访谈 谈对于我们项目的评论和第一印象 可以剪一些在柴火讨论硬件设计的片段 进去（照片也行）		名字+职位	

	初代设计：讲的中间穿插图片			
	柴火讨论以后的设计：讲的中间穿插图片			

P4: safety

音效	分镜	旁白大意	字幕	备注
	人访：街坊的 contextualization		第一次露面的人加介绍	
	街坊：市民对我们的项目的看法 市民打码，hobbes 之流不打码		英文翻译	
同声翻译/字幕 剪切部分录音，那时候画面就用波纹图	问农科部，问城管，问街道办，最后结论 可以放一些照片（农科部）	Rocky 表示：我们要怎样做才能够至少在投放时候不会收到官方的阻碍，我们需要政府的允许。		
大都快讲完的时候慢慢切上 [star divine] 然后就是本集片尾	录屏：简单演示一下我们的猫猫乐园 3d 建模 先录电脑然后硬切到电脑录屏 讲完 narrator 露个面，说一句'So, what's next?'	英文简单解释每个部分的精要		

P5: the advertisement for Kitty Wonderland

*This was originally a good idea, which is planned to show how our devise works in a real-life scenario. However, our devise wasn't finalized even on the day of wiki freeze, so this plan was discarded.

简单来说是这样的：

- 姚修作为一个门卫，在门卫室里看到了外面的流浪猫，喵喵大叫十分令人不快。镜头从聚焦到较远处的猫-聚焦到近处姚修唉声叹气的脸
- 于是他打电话给 eden，这时候 eden 正在 bluepha 看着两台电脑，跟姚修尬说一通
- 然后 eden 叫上了 Rocky 和 Charles 帮他把猫乐园的各个部件都搬上
- 然后 rocky 戴上墨镜和帽子和 charles 把东西搬出 bluepha
- 然后上车，出发
- 到达地点，姚修、rocky 和 charles 一起把猫乐园搭起来
- 拍里面小风扇转动的镜头
- 然后放摄像头的镜头，看到猫屋【里面】有猫
- Eden 又打电话。。。下令把门关上

- 拍猫屋门关上的镜头
- 拍汽车开走的镜头，然后放高德地图/谷歌地图导航去医院
- 放把猫放到地上的镜头，表示放归（TNR 做完了）
- 最后拍一下姚修，在同一个角度，没有猫，姚修笑了

标记的文字说明镜头必须在同一个角度（相机不挪动）同一时间拍摄

拍摄须知：

取景地 1:

- 某小区：有猫演员或者猫。拍两个姚修特写，组装猫乐园，汽车开走，放归猫。手机地图导航

取景地 2:

- Bluepha: eden 看电脑，eden 两次打电话，rocky 和 Charles 跟 eden 说话、戴墨镜、搬东西，上车

取景地 3:

- 猫乐园：关门，小风扇运转，摄像头录像。

音效要做得出来

一个周末和一个国庆就做这个

PART 2: Script—Q&A

The significance of this section:

In order to write a brilliant script for our HP documentary, I believe each person should write their own parts of the script so that he/she can perform very well under the camera.

[1] Stray cats are problematic and hard to control

What is the status quo of stray cat issues in China (and the world)? Why it's so problematic? Answer in no more than three sentences.

Tips: legislation, public opinions, NGO, stray cats' bad influence, the futility and ineffectiveness of current solutions.

Charles: Stray cats is an issue in many parts of the world. A current estimate suggests that there are 58 million stray cats in the US, but capturing them requires much effort. In China, this process is more difficult because of the lack of awareness of many societies. Some people neglect stray cats, but some are annoyed by their calls for mate so they may even slaughter them.

Lucinda: Stray cats are even more problematic in developing countries like China: Many people purchase pets but later abandon them, finding pets hard to keep in the packed residents or as they travel to new place due to work. The action is further connived by the lack of legislation on street animal welfare. Usually, there is no official organization working on programs that could control feral cats.

Alexis: Unlike street dogs, nearly nobody seem to care about the issue of street cats, simply because unlike dogs that are considered potential threat to the safety of the community, cats don't seem to bring much of problems. But that is not the truth. Street cats that can't find any food end up preying on small animals, which not only

include rats, but also wild birds or small mammals. Street cats is already disrupting the balance of the food chain.

Rocky: Most free-roaming cats in the city are not vaccinated, and unfortunately, with a bite, a scratch or even a touch, diseases such as Toxoplasmosis, Rabies and Cat scratch fever are transmitted to human, causing great pain and even death under some circumstances.

Eden: People have made great effort in caring cats. Entrepreneurs, volunteers, environmentalists, students, animal lovers. However, they are still far from the finish line. This issue is a global issue, and it's also a perspective issue. Have government made any effort? Has every individual realized and acted upon this problem? The issue is problematic because the solutions are incomplete.

[2] What's the plan of our experiment, and what's its connection to our project, mCATNIP?

Tips: How cats react to nepetalactone, the metabolic pathway.

Alexis: We were actually inspired by the interesting reaction of cats towards catnip. About 67% of cats, when smell the scent catnip, show peculiar behaviors like rolling on the floor, scratching etc. Most importantly, cats would try to follow the source of the scent. The magic behind this phenomenon is nepetalactone, a monoterpene found in catnip similar to the sex hormone of cats.

Charles: So, for the wet lab part, we aim to construct a microbial consortium made up of E. coli and yeast which is able to produce the precursor of nepetalactone, called nepetalactol. Because unfortunately the enzyme converting nepetalactol to nepetalactone is currently missing. Then we planned to convert it to nepetalactone through a chemical process.

Lucinda: We consider using biosynthesized nepetalactone because it is easier to be managed, comparing to catnip plants, cheaper than essential oil, and has a more potent smell than dry leaves.

Alexis: We came up with this idea of using nepetalactone as the bait for capturing the street cats that are highly alert and are hard to capture. But obviously with only nepetalactone it's not enough. A house is designed for cats to aid the executive of the plan.

[3] What's the general idea of our Human Practice?

Tips: TNR, Trap is the hardest part of TNR, design a tool to provide a shelter for stray cats and aid TNR, use nepetalactone to solve social problems

Lucinda: We collaborated with stray cat rescue volunteers from Beijing as well as other stray animal rescue organizations in Shenzhen and learnt that It's hard for volunteers to find and feed stray cats or capture them for health check or sterilization because many feral cats are agile towards human and tend to hide in secret places.

Lucinda: Sometimes volunteers contacts TNR groups to capture cats. TNR, which represents Trap Neuter and Return, is the most used approach to control feral cat population and increase the surviving quality of the population as a whole. However, these groups are too few in China and they are often too busy to provide enough

assistance for the volunteers.

Therefore, we build the Kitty Wonderland, which is a nekopara that attracts stray cats with nepetalactone and has cat food and water within, serving as a potential shelter for cats.

[4] Introduce the context of the presentation we held in the maker's space.

Tips: How did we get to know of the maker's space, what did we talk about in the presentation, feedback from the designers and engineers, personal feelings.

Diol:

Lucinda: We introduced the concept of synbio and how it is applied to solve problems in iGEM. Then we talked our project as well as the blueprint of a Kitty Wonderland that provides a shelter for stray cats using nepetalactone as the attraction. Our audiences were very eager and asked many questions regarding the principle as well as the safety of synbio and our design.

Alexis: This workshop in Xfactory meant a lot to us. Besides introducing our project mCATNIP and synthetic biology, we also obtained many feedbacks from our audience who were hardware designers, artists, teachers, government officials and even primary school students.

[5] Briefly describe the first design of the 'kitty wonderland'

Tips: The first design is based on Alexis's initial thoughts and the results of discussion with Henry and Liyu. Mentioning the initial design needs a balance to activate the door.

Alexis: Initially, we want to design with electrical circuits that use catnip oil to attract cats, then when the cats came, the device sense it and shut the door automatically. But in order to prevent other animals from entering accidentally we need a design that can tell the difference between cats and other animals.

Alexis: At first we thought of machine learning, using a smart camera to recognize a cat's face. But it's expensive and timing-consuming. Having watched a Corgi struggling to jump upstairs, I was reminded the excellent climbing and jumping ability of felines. So I choose to elevate our house to a height where it can only be reached by felines.

[6] The first improvement of the 'KW'

Tips: e.g. camera: Prevent vandalism and increase the accuracy of beholding.

Rocky: [messages popping up with sound effects] After interviewing a Stray cats rescue team in Beijing, we started to worry about our device facing vandalism. And then we discussed that with professional designers like John Henry and Liyu in the XFactory. Yeah [laugh], John agreed, and said that 'men are the biggest confounding variable in your field study.'

Rocky: Based on that view we modified our pressure-sensitive system for closing the door, into an integrated system of someone using camera to monitor the cats and then when it's needed that person shuts the door remotely. This, will not only enhance the accuracy of beholding, but also provides solid evidence whence vandalisms act.

Charles: [Jumping in] But what about safety?

[7] The second improvement of the 'KW'.

Tips: referring to interviews in the Coastal City and our short communication with Huang Hui, saying about the thoughts of using an evaporation chamber with extracted nepetalactone

Rocky: Yeah, so we went to a public area in our city called 'coastal city' to interview and inquire suggestions from citizens. We also met Mr. Huang, an administrator of a stray animal rescue association.

Alexis: Mr. Huang suggested that we need to pay more attention on the safety of the cat house itself, how to prevent it from being the target of the perpetrators. For example, make it with cheaper material so people won't bother stealing it. And maybe put notable signs on the house, telling people what's the use of the house and don't break it.

Lucinda: Many interviewees advised us to communicate with the community council to see whether residents who usually cared for street cats on their own could be organized to clean and check the cat house regularly. Also, some said maybe we should put our 'Kitty wonderland' [quotation gesture] in areas close to the neighborhood where stray cats usually appear but humans seldom approach, so as to avoid possible complaints from residents against street cats rescue while giving cats places with less human visitors.

Diol: [Chinese improvisation]

[8] The second improvement of the 'KW', referring to communications with the government. (This part of script is unfinished, that's why it's different from the film)

Tips: referring to our interview in the urban management department, referring to the assistance from Agricultural and technological promotion center

Rocky: How can we make sure that our device will not be demolished when placed in use because it's unapproved? Of course, we should ask permission and know the local regulations, right? So, I contacted many relevant government officials and managers down the government's chain of command.

Rocky: First we concerned about the regulations of the GMO

Rocky: But after some modifications of our design we concentrated more on the regulations about placing our object.

[Playing the audio records with 'Chinese to English interpretations]

Charles: The first version of Kitty Wonderland is a promising design, but we need to improve the KW's safety and decreases its constructing difficulties. Our power supply is a potential danger to both cats and the local site, so we construct a chamber to isolate the power source from the cat shelter. Another added feature is the roof, which can now be opened from outside, exposing the nepetalactone evaporation chamber and a small fan. This design will make the rescue team's life easier because they can replenish the nepetalactone easily. The design also ensures that the cats won't accidentally eat or scratch these tools.

[9] The demonstration of the latest 'cathouse' modelling.

Tips: the function of each parts, showing the 3D model, maybe field demonstrations

Eden: This is the modeling of the final version of our Kitty Wonderland.

Eden: In consideration of the protection and safety of battery, I designed a wooden box with dimensions of 40*30*30 cm for the sheltering of battery. This wooden box could also provide a foundation for the main house which is placed on top of the wooden box. Inside the wooden box, a plastic pedestal is fixed at the bottom of the wooden box. This is designed for the consolidation of the PVC pipe which runs all the way to the top of the house.

Eden: The PVC pipe has two functions. To immobilize the house and to protect the wiring. An inverted camera is installed at the top of the house. Under the roof, a culture dish is used to contain the essence of catnip.

Eden: So, what's next?

PART 3: the rolling subtitles at the end

'Kitties in Wonderland'

GBC's Human Practice Documentary Project

Director Rocky Yu

Playwrite Alexis Zeng

Charles Wei

Lucinda Lin

Eden Yu

Rocky Yu

Starred Alexis Zeng

Charles Wei

Lucinda Lin

Eden Yu

Diol Wang

Rocky Yu

Translation

contributors Leo Li

Tara Yan

Charles Wei

	Eden Yu	
	Eleanor Wang (external)	
Original		
Footage	Dong Yiming	
	Rocky Yu	
	Tang Zilun (Rocky's neighbor)	
Filmed		
Interview	Li Fenghua	
	Hobbes Yang	
	Wendy Zhao	
Mentioned		
Interview	Dachui—Stray cat rescue volunteer	
	Huang Hui	
	John Henry	
	Other citizens	
Production		
Artist	Marie Wei	
Editing	Pv	Charles and Rocky
	Episode 0	Rocky
	Episode 1	Rocky
	Episode 2	Rocky
	Episode 3	Rocky
	Episode 4	Rocky
	Episode 5	Rocky
Special thanks	Pv	Lifenghua Stray Cat Rescue
		南坞工作坊
		文化传播学院
		中国劳动关系学院
		Bluepha lab

		スタッフライト九九組
Episode 0	Lifenghua Stray Cat Rescue	
	南坞工作坊	
	文化传播学院	
	中国劳动关系学院	
	Keludy Zhou (Providing cat)	
	Tang Zilun (Rocky's neighbor)	
Episode 1	Keludy Zhou	
	David Production	
	Democracy 3	
	XFactory, Shenzhen	
Episode 2	Bluepha lab	
	Sean Yao (some photographing)	
	スタッフライト九九組	
Episode 3	XFactory, Shenzhen	
	David Production	
Episode 4	CSAPA	
	(China small animal protection association)	
	Shenzhen urban management office	
	Streets management centers in Shenzhen	
	Administrative office of the estate 'Boyu'	
	Shenzhen agricultural science and	
	technology promotion center	
Episode 5	Fusion 360	
	スタッフライト九九組	
Bgm list	Episode 0	Beautiful Crazy 半野喜弘
		Fateful #3 梶浦由記
		Summer Road 久石譲
		空に光る 戸越まごめ
	Episode 1	Roundabout Yes

Episode 2	Pop Team Epic	上坂すみれ
	Fly me to the star	スターライト九九組
Episode 3	Roundabout	Yes
Episode 5	Star Divine	スターライト九九組

Software FCPX, Adobe audition

(logo of the rescue team)

(logo of the XFactory)

(logo of GBC)

PART 4: brief pieces of advice for amateur iGEMers who wants to film team documentary

- Plan ahead, carry out plan ahead to leave at least two weeks for finalizing the film if you are a solo.
- Film whatever you think is useful during multiple iGEM activities, excessive material only occupies disk storage, but insufficient material kills the project.
- Buy or rent a Fuji XT3 for filming, which is known as the best consumer-grade video camera in 2018.
- Use multiple software, do most things on Pr and adjust speeds in FCPX is a desirable combination, but you have to make sure you are not an amateur in all of the tools.
- Better have someone who helps you to edit, solo is torturing and catching the deadline makes the product rough.
- You have to master basic knowledge about audio recording and editing, if you don't, ask someone else to do it.
- Lighting is important, and sound effects are vital. (this is nagging, everyone knows it).
- Don't add bungler and funny effects in the video, it's a serious documentary!

PART 5: Regrets and improvements

During the production of this documentary series, the biggest problem happens at earlier stage. The device we used was Canon 80D with a China-made bad quality camera lens and an outdated Nikon ASP-C that I forgot its type. At some stages we used Huawei P20 pro and iPhone X for filming. The filming devices are not meeting the requirements of a good movie. The conditions are unsatisfactory as well, since there is no natural light in the lab and the daylight lamp distributes strangely in the classroom. The next issue is skill, since we haven't got anyone who was specialized in photography and more importantly audio making. The audio recording is bad, and indeed we should learn more in that, from the conditions of recording to the post production process. For example, how to record with minimal environmental sounds, how to prevent echoes and so on.

The skills of the people involved in the post-production is another issue. There are multiple bugs in the documentary due to the inaccuracy of video editing. Especially in the P3, where the contextualization is insufficient, and the visual effects are not powerful at all. And in P4, the editing is too rough and sometimes the materials are lacking, so the editor took some footages aside his computer using his mobile phone. The processing of audio records with Au in this series is also unsatisfactory, the editor hasn't got enough denoising skills to handle the rough records and also the background music and multiple sound effects are not frequently used enough to enhance the effect on audience.

The last issue is about timing, since this documentary is more than 20 minutes, the editing takes a lot of time. If the editing starts 10 days earlier, the results will be much different, at least P3 and P4 will be much better.

Written by Rocky Yu, on Dec/6 2018