iGEM 2014

WEEKLY NEWSLETTER

SPECIAL ISSUE

iGEM 2014
Weekly newsletter

NEWSLETTER N° 5
from September 21st to October 10th

christina interview

Interview outline of SYSU

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Hi, all the iGEMers.

I am happy to announce the final issue of our newsletter. With the help of SYSU iGEM team, the last issue covers their experience and some interviews We hope that you can enjoy them and find something useful.

At the beginning we have 9 teams participating, with everyone's effort and endurance, now there are 34 teams from all over the world join us. Thank you for all the efforts you have made to newsletter.

We wish the best luck to everyone competing in iGEM and hope this newsletter can be a valuable resource. For iGEMers, a platform is in great need for communication and cooperation. Newsletter is expected to be a Facebook, a Quora and a ResearchGate for iGEMers. So does it. Moreover, it tells the world what these people are doing every day, and how they change the world gradually.

In the end, let's make it a full stop to our projects in the next few days! Best wishes to all of you!

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christina interview

Christina Agapakis is a biologist, writer, and artist interested in microbes, symbiosis, and the future of biotechnology.

Her scientific work explores the role of ecology, evolution, and design in microbial synthetic biology. She has a PhD in bioengineering from Harvard, where she worked on producing hydrogen fuel in bacteria and making photosynthetic animals.

She is a writer for the Scientific American blog network and other online venues, including Discover Magazine, Popular Science, Omni Magazine, and The Toast. Writing for a broad audience, she explores the many unexpected connections between microbiology, technology, art, and popular culture.

Her artwork likewise connects biology, technology, and culture through multimedia explorations of the environment, microbes, food, and the body. Her work is interdisciplinary and collaborative, working with artists and designers from many fields as a resident with the Synthetic Aesthetics project and a fellow at the UCLA Art|Science Center + Lab.

She is currently a partner at the biological design consultancy Icosahedron Labs and an adjunct professor of Media Design Practices at Art Center College of Design.
(http://agapakis.com/)

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christina interview

A TALK WITH CHRISTINA

It's hard to say who Christina is. She is a writer, a scientist, an artist, an engineer and possibly more. It even took herself a couple minutes to think about and list the projects she is doing at this moment, each of which concerns multiple professions. She just finished her post doc years, after her PHD in Harvard and now is teaching at an art school about biotechnology. On the side, she is writing for science America and has her own company that focuses on telling the story of science that is not always focused on, the messy part. She is the aggregation of all the roles that traditionally define a person. However, as my conversation with her goes further, I realized she is not only an aggregation of roles herself. She is all about aggregating.

iGEM is aggregation to her. A good project, or almost all the iGEM projects would not be made possible if there is no integration of new ideas and the improvement of built parts. In some sense, it is also where old application and knowledge get fully understood. It's like the new growing leaves. Maybe them appear to be much more pretty than the older part, but they wouldn't survive without the tree. Christina said a good team usually has a new application in mind, but spends a lot of time improving the past parts and their own device so that other people would be able to use it afterwards. At the end of the day, iGEM is a design competition that hopes to build a database where everyone can understand and use.

At the same time, iGEM is an aggregation of people. On each team, there are already people with different specialties. We have designers, programmers and scientists working on building the same idea, talking about the same project in different ways. Because of this, each iGEM project is not a plain picture. It is more like a cube, or a sphere, something that is multifaceted, something that reflects light in various ways. Moreover, Boston jamboree gives us the chance to put all these different 3D shapes together, on the same stage. We meet teams that have successfully carried out their projects. We also meet teams who struggled with the first PCR but are sill so excited to be there. We take part of something from other people that we don't have, whether it is passion, hardworking or resources, and we multiply the power. Something larger than winning, judging and individual projects comes out of it.

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christina interview

A TALK WITH CHRISTINA

Synthetic biology is aggregation to Christina. During the interview, I asked her a question that I , and probably most of you, have been asked many times: what is synthetic biology? Trying to get a standard answer from her, I was kind of disappointed when she said synthetic biology is doing things about biology. She knows that being asked this question is part of being a synthetic biologist, however she likes the broad definition, because it encourages different people to become synthetic biologists, which enriches each project in synthetic biology indefinitely. And of course, this kind of grey area is what she enjoys exploring. In retrospect, the answer reminded me of our earlier conversation about art and science, and how artists are able to step back and look at a bigger project, putting everything in content with the surroundings, while scientists get stuck and frustrated by a specific step. It also relates back to a topic that kept coming up: science is messy, especially biology. A lot of time, it is more about the Nature paper, or curing cancer. It is about failed PCR, contaminated LB and half liquid agar solution. Christina seems to believe that the broadness of synthetic biology removes the limitation of how elite and tidy science needs to be. By encouraging everyone who is working with biology, no matter in a lab, or a photo room, or in front the computer, to consider themselves as part of synthetic biology, it removes the limitation of what science is. Slowly, the aggregated picture of how scientists design, think, fail and deal with the messiness is brought up by either scientists themselves or other people to the public. Furthermore, this change brings science and scientists closer to other people and daily life.

Another movement that has been revived partially by synthetic biology, which is also the funding idea of iGEM, is open science. While talking about iGEM part registry and open science, Christina said it is like officializing the openness. If the idea of open science is a cave while ideas, data, all software program related to research come together, iGEM is making this cave into a tunnel that connects teams from all countries to each other, to professors and to other labs. Not only iGEM, synthetic biology is a field of sharing and aggregating. The ultimate goal is to build an area where data and research Update automatically integrates. The resource of one lab becomes the resources of every lab and one lab will have the resources of every other Lab.

It is hard to focus on iGEM while talking to Christina. I kept wanting to ask her about the artist experience, the travelings, owning companies and gazillion other things. She is a person with passion in different areas and is often moved by other people's passion. One of my favorite things that she said during the interview is that sometimes an area doesn't need to be cool to involve people. You just need to see the passion. Being in iGEM, we are all a bunch of synthetic biology obsessed. With the passion, I wish you best luck and a project that will move people who do and do not understand synthetic biology and make the world a slightly better place.

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Interview outline of MENGYI SUN, THE LEADER OF IGEM-SYSU-2013

Q1:Was there any experience of member selection, team composition and skills training within the team? And do you have any advice to other teams?

Sun: We didn't have any standard rules for the member selection last year. It was our common interests that brought us together and held us to the last. And everyone was elite. However, from then on, we tried to standardize the selection by improving promotion and discussion of relevant topics. The ones who persevered became mainstays. As for team composition, most of the members majored in life sciences, with one or two in CS, mathematics or physics. An excellent art designer was also a special part of SYSU. Everyone has their own strengths, which helped us to broaden our vision. It was also extremely helpful for us to have someone taking on the main responsibility of the operation. If the trifles hadn't been solved, we couldn't have got good results. Instead of unified training, we preferred to learn by ourselves according to our interests because of the distinction among members. At the same time, you can always find resources online, such as MIT open courses on synthetic biology, which had a detailed schedule of references and prerequisite courses.

Something I want to tell other teams is that responsibility and self-sacrifice are of great importance for iGEM. After all, there are so many things to learn and most members possess equal ability of learning, which highlights the significance of perseverance. In addition, I suggest starting the project early since team members' individual schedule might intertwine with the team schedule. This is especially true for junior students, who might be applying to graduate school or looking for internships. All bring said, at the end of the day, let's enjoy the jamboree and don't worry too much about the results. Carelessness might bring surprises.

Q2:Did you meet with difficulties during the construction of team and program? How did you overcome them?

Sun: It was difficult to create a favorable cooperative environment, especially late in the competition, when we were under increasing pressure, because the deadlines of many goals were approaching. Fortunately, one of our leaders paid great attention to these things and tried her best to keep the harmonious atmosphere by organizing some hiking early in the process, as well as setting an example to devote her energy to experiment and wiki wholeheartedly at the later stage. In comparison to her, I mainly contributed with academics, such as idea conceiving and contacting (organizing the?) laboratory rooms. And I really appreciate her work.

The hardest part of program construction was to keep the members' enthusiasm in thinking high. For one thing, everyone could be indolent sometimes. For another, someone might be eager for only one idea to be adopted while others would prefer different ideas. However, the last idea that was generated and finalized was produced by pondering over together (which meant the entire team was enthusiastic/happy?!). It was quite important that someone could be selfless enough to perfect others' ideas instead of only thinking about his or her own. The selflessness spreads and inspires us, leading to a better working environment.

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Q3:How to insure that such a large team worked effectively? How did you assign and coordinate tasks?

Sun: Our previous experience has suggested to us that a small and competitive team rather than a larger one suits the competition. If the team is relatively large, you should try to match team members with tasks not only based on their technical skills, but also their personalities. Everyone in our team - (had different abilities?) and they found their own places.. When doing experiments, those who did well (and who were willing!) took charge of that part of the project. Someone else who showed more passion in administration and management than research handled financial accounts. And the one who likes to communicate contacted the teachers, while others processing active thinking played an important part in idea construction.

As for coordination, someone willing to make efforts for creating a great team atmosphere is necessary. Thus, don't select members only based on academics. A bunch of geeks may not perform well in the competition.

Q4:Would you like to share something that impressed you most?

Sun: When we were announced to be the 2nd Runner up, all the Chinese teams stood up and called out our team's name. We were so proud and moved by the friendly competition. This must be the most inspiring thing for us, ha-ha.

Moreover, I would never forget the night right before the regional final in Hong Kong. The whole team was up for the whole time and working on the wiki. That's probably how we got the best wiki award. Above all, the process was glorious even though I didn't arrange everything perfectly due to being a rookie!. Do not give up, like ever. Fight till the last second.

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Q5:What did you give and gain in iGEM? Do you have some stories to share with us?

Sun: So far as I am concerned, I gave my full heart to the competition and enjoyed the journey (?) much more than the worrying about the result . To dedicate completely, I deferred my application of study abroad for one year.

The gain is the experience of almost the whole process for scientific research, which I acknowledged in every regard; from constructing the team, conceiving the idea, writing the proposal for funding, designing the experiment, to the final presentation. What's more, it is refreshing to visit the first-class universities. You couldn't miss the opportunity to visit the elite schools in America.

Another acquisition is in personality. I used to be a difficult person, even a geek, but after the competition, I found out that teamwork is an important part of scientific research, and that biological research is work of a group without which a single person is nothing. So I began to change my character. And the story of John Nash tells us that the lenience and tolerance of the whole department of mathematics was the soil that cultivated his achievements. Now, I would like to think of myself as the soil more than the flower.

I have untold stories of our team. I'd like to pick two of them to share. When we were hanging around a magic store in Las Vegas, one of us asked the owner, 'Could you play a trick for me 'I do not have time to watch the show in Las Vegas.' To our surprise, the aged man said seriously, 'We never call it trick. We call it magic.' Perhaps American scientists regard their work in the same way as well.

As for the other story, we visited some universities in America. Rockefeller University's motto is Science for the Benefit of Humanity, which seems commonplace. But they've lived up to their motto. The 2011 Nobel Prize in Physiology or Medicine went to Ralph Marvin Steinman from Rockefeller. Standing on the campus, I felt really sorry for his passing away just several days before he won the prize. If he had stood on the rostrum, it would have been the highest praise of life. Interestingly, it was the immunotherapy he had discovered that made his life last till 2011.

Q6:What would you say to the new iGEMers?

Sun: the best way to learn is to experience. After all, only if you have viewed the world, will you build your worldview.

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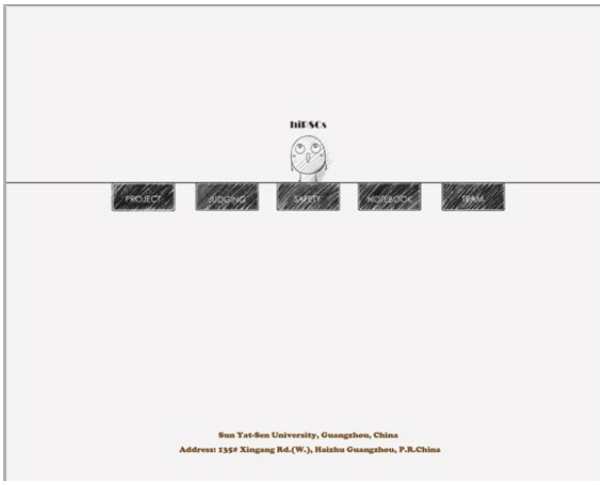
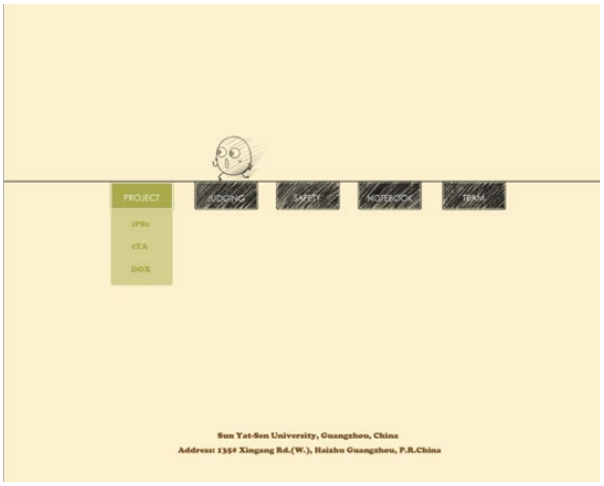
Wiki design experience form SYSU

As the winner of Best Wiki in 2013, SYSU is glad to share something interest with us. The article following comes from the designer's readme. I hope it will help you in the design of wiki.

I spent the whole day thinking in a mess at the time, however, unfortunately it was rejected in an instant. Then I prepared some materials half an hour before the second design meeting and used the limited time to complete a wiki of concise style. Then this came out:





The preliminary idea is that the menu is black and white and when you click it will color. The reason of the mascot's design is that our project is connected with the cell, so I draw a round face and give it hands and feet simply, which is really nothing technical... (I just spent half an hour finishing it is not good enough) And then I thought that if the cells will be run when the mouse is moving to each section, the wiki will be more vivid. The general design is in this way, surprising it was recognized. And then there is a long road to modify. I think there are too many colors used in one page to express what they have done in other team's design when you opened the home page and then we were really feel aesthetic fatigue... therefore I thought the selling point of this design is using simple colors to express something wonderful. So we pay more attention to seize the eyes of viewers on the details, such as, top button on the right side of the page was starting with a pencil shape, because the original idea is to use the sketch style in web pages, but finally we used the cells themselves suddenly dropping and flying up as the top key, indeed it was more attractive as expected...Inspiration, I think, is really something unexpected, ha ha ...

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Next is the logo of our project, which is also designed according to our content of the project. It is also interesting:

Rainsun.

It was really at sixes and sevens. Later a team member advise that we can make a logo like the postmark, then the logo formed:

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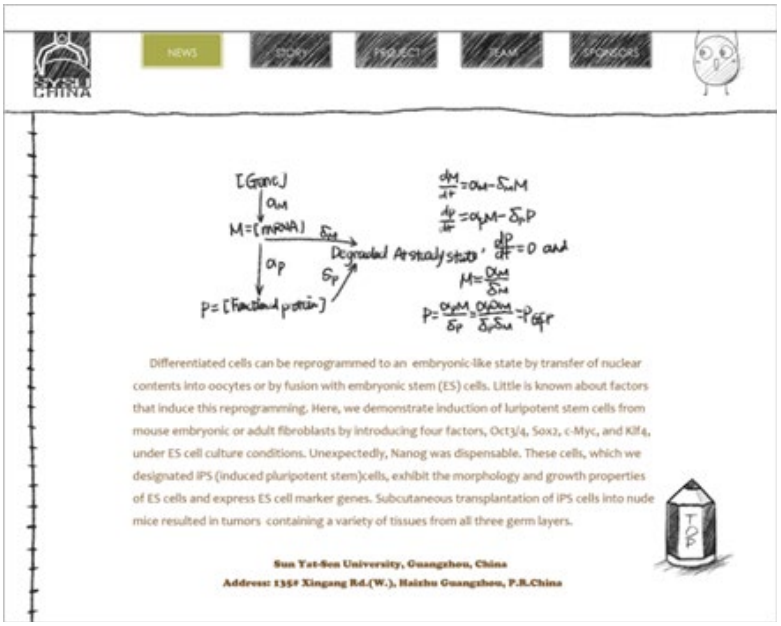
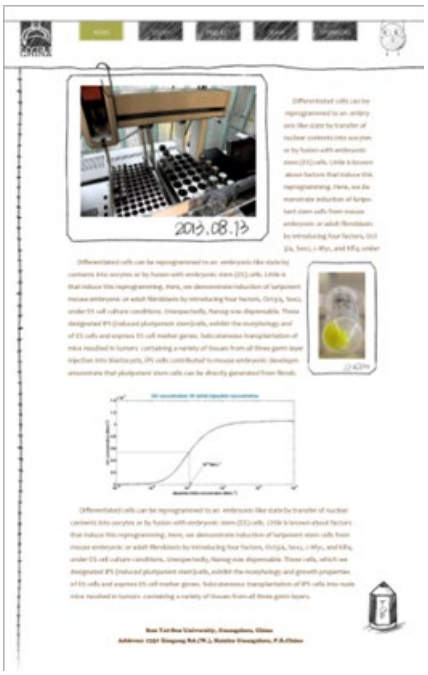
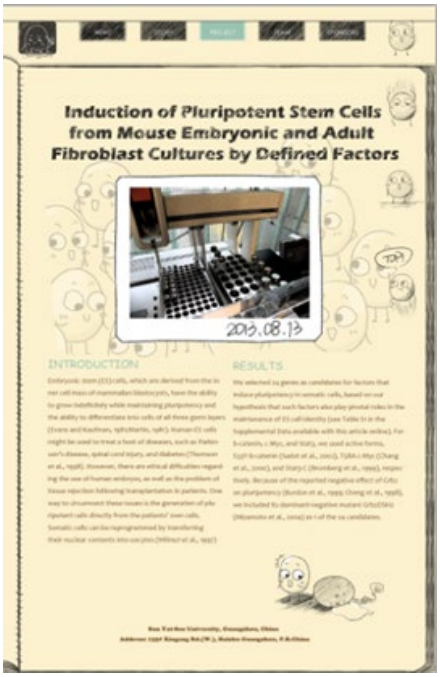
Further, we put the logo into the wiki and pulled great effect from the design of the web page.







Generally speaking, it costs many time and thoughts to finish the wiki. The web pages is general designed by Fang Chao.

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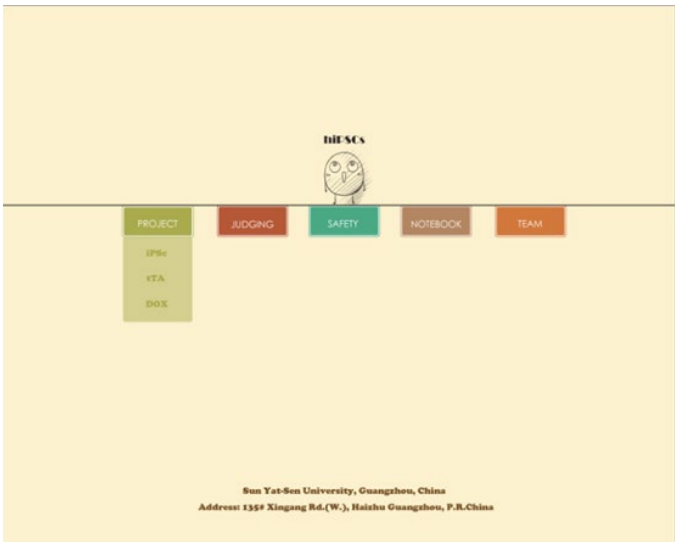
It's a pity that I am not good at. So I often use others' design for reference or make use of others' color collocation. At last, the overall effect is great.



In order to unify the style, we should draw the all pictures, which is a long but exciting process.

Actually the process was not step-by-step as the above, instead everything was conducting meanwhile, according to the inspiration. The art designing team was divided, I mainly responsible for web design and pictures of the project, Fang Chao was responsible for the structure of the web, the layout of poster and the PPT. But a clear division of responsibilities is not completely independent, of course we need a lot of time to communicate with each other and then more unexpected inspiration will burst out. Of course, there are sometime we can not think something creative and our work efficiency is low, can only come out some common design, at this time we will chat with each other and spend some time enjoying life. In fact we often write down something once we had some ideas and improve it later. I do not agree that keep ideas in mind but do nothing because the inspiration is always flowing out in the process of production.

As for ideas, I generally think about what effect we want to. Like what mentioned above, at first we want the web pages to seize the viewers' eyes, so we designed the wiki of concise style and add more creative on the details (such as the running cells, flying up and down top), which greatly increases the interest of our topic. At the scene a foreign student told us that he just spent ten minutes playing the moving of the cells. Seriously, it is a bit difficult to just use subject to attract people. After all, there are so many projects. I think something special besides the project could attract people and could let them want to further understand the project. The subject must, of course, itself is worth you to do so...

In general, the participating experience is a wonderful experience in my lifetime. It is happy to cooperate with Fang. Every time we gave different opinions to each other and also considerate of each other. Most of the time Fang couid give me some excellent advice, if it were not for the advice, I would not complete the design.

I hope the experience can help you, thank you:)