QSS Thesis Experience, Herbert Chang

"Writing is just a giant exercise for giving a shit." These words have stuck with me since hearing them in my writing seminar, not just for their relevance to writing, but for research as well.

If you are considering writing a thesis, then there is likely a specific area of the social sciences you care about, but aren't quite sure what to do about that attraction. I was interested in how science influenced science fiction, radio engineering influenced music technology, so broadly, how technological innovations and behaviors influenced each other. I wasn't sure where to start, but I quickly learned that was alright. The whole year was about distilling this impulse into words.

What I did

Formally, I wanted to study how related behaviors spread, typically known as **complex contagions**. I focused on three things: the synergy between contagions, their dormancy rate, and the network topology they diffused on. Think of it as simulating two memes spreading in a population, but simultaneously across different network layers like Twitter and Facebook.

Discussing results at St. Andrews, Scotland

Rather than collecting data, I generated it. Using 500 CPUs on Dartmouth's Discovery Cluster, I ran a few thousand simulations. Then, I analyzed the data using the shared statistical toolkit in our thesis seminar. I worked with my advisor Professor Feng Fu from the Department of Mathematics for additional analysis.

What I learned

I became a lot more proficient in Python, R, and computing on a cluster. Because of the shared statistical methods used in the seminar, I was really able to pick my classmates' brains (special thanks to Kendall, Mike, Ziqin, Rossina and Jay). I also welcomed the flexibility in senior year to set my own agenda and schedule. The evening seminars often come with free pizza or catering.

The level of commitment everyone has to their project will vary. While challenging, a thesis shouldn't become a negative source of stress during senior year. However, I can say that even if you simply go through the motions, self-driven research will make writing business reports or graduate school dissertations feel like a familiar walk down Main Street, Hanover. Producing a literature review, discussing methodology with peers, the final rush during the spring, these are valuable experiences. And there really is no better time to try than in college, since a thesis is the exception rather than the expectation. Dartmouth provides a supportive and relatively low-risk environment.

I feel super lucky to have been in a cohort of students enthusiastic about their projects and am glad to have written one.

Tips

- **Advisor Meetings:** I met my advisor weekly, or any time I had new results. This iterative approach helped me to improve the quality of my work. Setting up the code for analysis early on will save you tons of time between meetings.
- **Data:** My work contained simulation, so while I had to write twice as much code I could generate as much data as I want. Google released a new site called Dataset that provides great way to search and collect data.
- **Funding:** Both UGAR and the Rockerfeller center have senior thesis grants, which can help pay for data, conference presentations, or computational resources.
- **Graphing:** Asking R/ggplot advice from classmates will save you tons of time.
- **Publication:** If you're interested in publishing your work, Dartmouth can provide funding for Open Access Journals.
- **Course selection:** Winter term will be where the bulk of the work lies, so choose courses accordingly. You can get ahead during winter interim as well.
- **Eat well, sleep well, have a great senior year!**

I was fortunate enough to have my thesis published in a special issue, if you're interested I'd be honored that you took a look.