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Section 004

Final Paper

Throughout my life I’ve always been fascinated by technology. Growing up in Silicon Valley, there was an abundance of discovery and innovation happening right next door. And these would always be the topic of conversation at our dinner parties. My mother, who’s a computer engineer, would tell me fascinating stories about the projects she got to contribute to in work, sparking my interests even more. The most mesmerizing story I remember hearing, was when my mom told me her company, which specializes in gift card development, was building a mobile platform for any monetary transaction. My mom claimed that with the new security features on phones, such as facial recognition and fingerprinting, storing credit card data in them was seeming less and less risky. She said soon, it might be possible for people to simply scan their phones instead of carrying around an entire wallet of cards.

As the technology industry was booming in California, so were the business opportunities. Startups, which are newly forming companies, were continuously launching. I watched as my best friend’s dad gave up his corporate job to pursue his passion by creating his own mobile application company. Last summer, I got my first internship at MovieLaLa, a startup working to create a social media-marketing platform for films. During my experience working here, my curiosity for the design and development of consumer electronics grew. This sparked my interest in human computer interaction, the study of the incorporation of technology into our everyday lives.

When we got this assignment in class, I knew right away I wanted to interview my Engineering 151 professor, because I knew had done research in human computer interaction. Specifically, Professor Wellman’s research focused on applying computer science to economics. Right now, I am in Economic 101 and Engineering 151, and they are my two favorite classes. Thus I knew this was a good choice.

Professor Wellman was more than eager to talk about his experiences and share his wisdom with me. I started off by asking Professor Wellman what got him interested in this infrequent field of study. I knew he got his undergrad degree in computer science from MIT, but what surprised me was that he didn’t get his first exposure to economics until graduate school. That was when he became interested in the subject and decided to dive a little deeper into it with research. In a way this made me feel relieved, because I was under the impression I needed to figure out exactly what I wanted to do soon. However, his experiences made me realize there is plenty of opportunity in my future and there is no need to rush any decisions or experiences in the present.

We then went on to talk about Professor Wellman’s research in these fields. Professor Wellman informed me that when he was first starting off, computer science was an emerging field without much infrastructure or direction. Most of the applications were still emerging and just fifteen years ago most industries were not technologically atomized like they are today. Almost no research existed in applying computer science to economics, so he was a forefront to that.

Wellman’s main research was focused on decision-making and game theory. I read Professor Wellman’s keynote on agent-based modeling before the interview so I had some background to discuss his work with him. The main question his research sought to answer was “How can or should we justify our choices?” His goal was to create a software that, if given data and a scenario, could pick out the ‘best’ choice. But ‘best’ is a hard term to define. According to Professor Wellman decision-making should focus on five main criteria. The first is plausibility. This is simply considering, if the option seems like it is doable, or if it so obscure and difficult to implement, that it is an unreasonable choice. The second criteria is rationality. The idea here is similar to the first criteria, but its emphasis is more determining whether the results are desirable not the path to get there. Together, these two factors are what most humans use to make decisions on a daily basis. However, Wellman’s program went beyond these to analyze statistics that most humans don’t have easy access to, especially when it comes to everyday choices. The next two criteria depend on historical observation. If we are trying to analyze a certain group of agents, trends in past decisions can help make predictions about what that group will likely be inclined towards for the future. Also, modeling how different choices played out historically can be beneficial in trying to predict future outcomes. The last criteria we discussed was evolutionary stability. This was the most complex idea included in the program**.** This approach models entire systems of agents with accordance to natural selection and known methods of behavioral learning, to predict possible scenarios for different decisions. Since we had just done a project related to this research (obviously scaled down in difficulty) in Professor Wellman’s Engineering 151 class, learning about his inspiration and the applications for these the project proved extremely interesting.

Our conversation then went on to talk about Professor Wellman’s career path, and other career options for people interested in both economics and computer science. Professor Wellman believes he is primarily an academic, but at the same time has had the opportunity to work in industry. Since I am considering both these options for the future, I asked him to elaborate on his experiences in research and industry, and compare and contrast the two. I knew Professor Wellman had done consulting work for Ariba and worked as the Chief Market Technologist for Trading Dynamics in the past, but what I learned was that these were only part-time jobs and his main focus was always teaching and research. He mentioned how lucky he was that he never had to choose between the two, but believes his true place is at the university. Professor Wellman talked about how the environments in both of these places are almost opposites. Businesses have a tight budget and no room for error or experimentation. As a result, if you are going to work in industry there is a lot of pressure to perform and execute efficiently on the first try. On the other hand, it is much easier to get funding or a grant at a university and explore even the most remote ideas you have. Also, the atmosphere places more of an emphasis on knowledge, so failure is not condemned, but rather encouraged, as a stepping-stone to success. Professor Wellman also went on to mention other career paths that many of his research interns have taken. Of them the most popular seems to be going into sales and trading at an investment bank. In this day and age, even Wall Street seems to be overrun by technology and could use someone with a background in computer science.

During the last few minutes of our interview, Professor Wellman gave me some final words of advice. He insinuated that we are living in a time when the boundaries separating traditional fields of study are falling down. This is especially true when it comes to the integration of computer science with other majors. Interdisciplinary studies are becoming more and more popular. Professor Wellman told me to not be bound by one field, and its specific way of thinking. He told me it wasn’t until he began to study economics, that he realized how drastically different it was from how computer science majors were taught to process information. I learned that it’s important to have a broad mindset and the ability to see things from different perspectives, and these are also skills many employers look for. As a result my goal during my time here is to take a variety of classes beyond the engineering requirement to build a range of viewpoints. Whether it’s computer science, history, psychology or statistics, each field has a unique way of analyzing the world and I want to be able to understand why they differ and compare and contrast them. In conclusion, I definitely still want to be a computer science major, but I don’t want to ever limit myself to being just that.