
STATEMENT OF PURPOSE

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I exhibited early traits of logical reasoning ability by winning Top Prize in a national Physics competition for junior high school students in China. Subsequently, the Ministry of Education in Singapore offered me a full scholarship to study in the country, where my interests in Computer Science (CS) burgeoned. In high school, I volunteered to develop a website for a foreign students association. As Google search was not popular then, I relied on public library resources extensively to learn web programming. After I launched the website, an older friend noticed my perseverance and capability in “figuring out how things work” and encouraged me to choose CS as college major. I followed his advice and never regretted.

In university, I performed well and was admitted into the Special Programme in Computing (SPC), which aims to nurture undergraduates’ research interests. There I started to learn how to approach research in a systematic way and became familiar with many seminal papers. Besides that, I prepared myself for a potential research career by studying many advanced theoretical courses. Notably, I had taken almost all senior-level courses in databases and algorithms and aced all of them.

In SPC, I joined an interest group on Natural Language Processing and had my first research experience. My supervisor was interested in Chinese Word Segmentation—an emerging subfield among Asian researchers. Under the guidance of one of his PhD student, I did a comprehensive literature review of the topic, reproduced the building steps and results of an improved version of segmenter based on his unpublished paper, and developed several tools to facilitate his on-going research. This valuable experience gave me a more realistic picture on research: although it is ultimately exciting when results are produced, the process itself has lots of ups and downs.

In 2009, I interned at the R&D department in a renowned governmental technology company. There I was exposed to another interesting subfield—digital media. The goal of the research project was to explore the concept of location-based entertainment in healthcare, and to eventually develop a prototype of a large-scaled virtual hospital project. The research process was full of fun: I found myself becoming an architect, structuring a virtual world to implement the abstract research concepts and setting project standards for future developers.

At the meantime, I also participated in the Undergraduate Research Opportunities Program, in which I did a research project in software engineering. I explored the ways how users’ online documents from Google could be displayed in a traditional Windows Explorer. The project required understanding on both Windows Explorer and Google Docs’s internal working model. In the end, I successfully delivered my product and named it “Google Docs Explorer”. In fact, when Google released its Google Drive this year, I found that its Desktop version was highly similar to the tool I’ve developed two years ago!

As part of my senior thesis, I designed and developed a peer-evaluation software. It employed the concept of software-as-a-service in cloud computing. The system was architected in a way highly customizable to the complex needs of instructors and students. During the design phase, I found myself unconsciously adapting the database and algorithms theories learnt in class in order to build a compact data schema and efficient backend. Through this, I realized that industry and academics are not two disparate worlds in CS: real-world needs trigger academic exploration whilst academics drive the core of industry.

With this in mind, I joined Credit Suisse as a technical analyst to have more industrial exposure. My team is responsible for developing a market risk application for trading desk. There I conducted extensive work on database tuning under the guidance of a database expert. Although I had learnt many relevant theories in university, it was still an eye-opener when I saw the radical impacts of a few tweaks on the databases storing terabytes of trade data. To strike a good balance between cost and performance of database, I read up numerous technical blogs and research papers from Microsoft to understand the inherent structures and capabilities of SQL server that I could exploit. Recently when I left the team due to management reallocation, my manager in London wrote me a letter complimenting my work in delivering quality analysis and improvement on the database in relatively short period of time.

In retrospect, I started off with a broad interest in generic science, gradually discovered my true interests in CS. Since I gained the most satisfaction whenever I structured algorithmic solutions to improve the performance of a complex system, I would enjoy doing research on machine intelligence in designing smarter and more efficient software. Meanwhile, my working experiences in databases and software engineering would help if I could work on developing learning algorithms for practical use in real world.

With that, I sincerely wish I could have the prestige of becoming part of the research community in your department. I have the confidence that with my passion, perseverance and solid CS foundations, I could make a modest contribution to the academic community in the future.