Statement of Purpose

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What is the key to distinguishing "good" and "bad" software systems? What does it take to create a perfect program? This kind of problem has troubled me since I was in elementary school. To understand this profound knowledge, I have used "hands-on practice" to investigate the operating principles, technologies used, and development methods behind various software systems. However, I found that I aspire to learn more professional knowledge to practice the complete software life cycle and a business mindset when I tried to develop a large-scale, many-people-used system. This eagerness is what drives me to apply to the MEng in Software Engineering at XXX University.

My motivation to refine my knowledge of software development comes from my term projects and side projects. At the end of my freshman year, I started to maintain the TAT App, a campus life tool developed using the Flutter framework and used by thousands of students at the National Taipei University of Technology. It allows students to quickly check course timetables, grades, calendars, and other functions. During this period, I improved many existing problems. For example, I established a Kanban Board for the project and defined the requirements and use cases for each Release milestone. In the code part, I put most of the existing business logic split into different sub-modules, combined with the concepts of Clean Architecture and Null Safety to refactor, and maintain a unit test coverage rate of more than 90%. The biggest challenge I faced was that I lacked the concept of designing the operation process when I thought about how to fix the problem of account login failure without warning. Later, I clarified the login process by drawing a simple step-by-step flow chart and then found the fundamental problems to repair them. The process of overcoming difficulties and coming up with solid solutions sparked my curiosity to create user-friendly products with software engineering methods.

My curiosity led me to do an internship at Taiwan's most widely used messaging app company - LINE in my junior year. The high technology and high quality here opened my eyes. I first joined the LINE SHOPPING App dev team, and my main task was to complete the requirements raised by the Planner in each Sprint, evaluate the new requirements with other members, and discuss the team's possible improvements. Once I received a job to improve the UI Widgets, but I had to understand the existing implementation methods before I could start, and I was stagnant for a short time. Fortunately, I discussed this with my Mentor and developed a coordinate system conversion formula to solve this problem. In addition, I sorted out the pros and cons of documents in many open-source projects to think about how to improve our project’s wiki, so that newcomers can familiarize themselves more easily with the structure and development conventions of the entire project. During this period, I also served as the scrum master of the school's "Software Engineering" course project, using the knowledge I learned in LINE to lead the team's development.

At the university, I enjoyed gaining technical experience through hands-on experience. My partner and I recreated the game “BaBa is you” in TypeScript for the course “Object Oriented Design Practice”. We used the observer pattern to subscribe and notify the movement events of each character on the screen and used the builder pattern and factory pattern to generate each animated sprite with the PixiJS framework. After combining a self-made map controller with collision detection methods, a Puzzle game with dynamic game rules was reproduced. Meanwhile, I made a Web3 DApp with my partner in the course of "Smart Contract" with the purpose to help dog-loving charities collect funds and ensure that the flow of funds was open and transparent. We created smart contracts based on the ERC20 fungible token standard and Solidity language, and designed a web front end with Ether.js & React. In the end, we made an online fundraising system that could donate Ether according to the dog's name and photo. These practical experiences enable me to grasp the details and usage of technologies more effectively. Also, I can cultivate better technical sensitivity and familiarity as well as enhance my ability to develop complete software.

Moreover, I also served as an intern speaker at the annual developer conference (LINE TECHPULSE 2022) on behalf of LINE last year, taking this opportunity to share skills I learned in the company and the reason why I became an intern at LINE in my junior year. In addition, I broaden my horizons in the field of software engineering by actively participating in various student societies. When I was a freshman, I joined the Programming Club and served as a teaching assistant for Python, Java, Back-end, and Flutter courses. At the same time, I also joined the Students’ Information Technology Conference as a seminar and summer camp volunteer in 2019. These classroom projects, activities, and internship experiences have strengthened my determination to pursue advanced knowledge in the field of software engineering and computer science.

Through the postgraduate program, I can continue to improve my capacities and skills to solve problems in the software development process. The MEng in Software Engineering at XXX attracts me with its international reputation and excellent teaching faculty. I am especially interested in modules such as Software Measurement & Testing, Security Engineering, and Agent & Multi-Agents Systems. This program is not only a technical course but also allows me to hone my problem-solving skills. Most importantly, it can provide me with the best opportunity to enter and contribute to the field of software engineering. My career ambition is to work at a leading corporation, such as Google or Meta, to make the world a better place. It has always been my dream to build efficient, safe, beautiful, easy-to-maintain, and easy-to-extend software through professional software engineering methods. I sincerely hope you will give my application favorable consideration so that my goal can be realized.