Personal Statement

Creating a service that improves the quality of life is a goal that I've had for years.

I've had this dream vaguely since my high school, but it became concrete during my military service. I started learning programming from another soldier during my spare time. I started from making a Tetris-like game with Python and exploring other languages and technologies. One day, I encountered a nationwide programming club recruitment called "Likelion" during the military service and prepared for it. After getting selected as a member of the club, I took a year and a half off from university to grow the club and focus on numerous projects such as game, web, and app development.

As I was hunting for various hackathon opportunities, game development caught my highest feelings of enthusiasm among other fields. Although this required the most difficult and diverse programming skills, I never gave up in front of those hurdles. I participated in Game Jam by Smilegate in 2016 and met wonderful teammates that I continued to work together with for two more years. During the three days of hackathon, we created a demo version of a puzzle game called Nabla(∇) using Unity and its physics engine and were chosen as top 3 among other competitive games. Since we were awarded, we tried to find workspace and monetary support to continue the project. However, there was no help for a indie-game team without a great resume. We continued to finish developing the game cutting out our spare time and money and published it to Google Play Store. Although this did not end up becoming a hit game, this experience allowed me to feel how harsh the indie-game development field is and at the same time how a person's passion can overcome this environment.

I mainly worked and taught as a web developer during the break from university. Among many projects, "Classlion", a website used for rating university courses, was definitely the most valuable project in my life. It was also a project that was meant to have powerful support and funding by the owner of the largest programming education organization in Korea. I was chosen by him to compose a four person team and start from nothing. I learned how difficult it was to create a full-functioning website with user authentication and search module functions. However, communicating with the owner that was not interested in the project was the most challenging part. Even though he was the one who requested this project, he was busy taking care of his other projects. In the end, our team was finishing up the website with full features in an uncertain environment like a dense fog. I loved this project above any other but at the same time had the

most trouble with it. This project made me promise myself, one day I will create a meaningful service to help and directly impact a larger population of users.

In between these challenges, I was able to carry on learning by achieving a sense of accomplishment from many competitions that I received awards at. One of them was an AWS power user hackathon. I came up with a virtual start-up called Omnisan.com that analyzes and visualizes social data for a game company.

To accomplish the dream that I had, which was to create a service that improves people's lives, I started SKKOOLBUS, a bus tracking app for my university, Sungkyunkwan University. I had many challenges with this project: reforming the team twice, funding issues, convincing school employees for getting access to the bus GPS API, and mostly technical issues. The goal was to provide not only the tracking but also the real-time expected arrival time. There had been a lot of temptation to stick with a fixed-value for the arrival time, but I made this app to calculate it real-time in the server.

Outside of studying, I volunteered to teach programming to elementary students from poor families. I strongly believe that everyone should have a chance to experience programming regardless of their background and wealth.

I have a well-suited background in data science. I was chosen as a dual degree student to earn two bachelor's degrees from Indiana University and Sungkyunkwan University, Korea. I chose to major in economics and minor in informatics to pursue research in data science. During my sophomore year, I was awarded in my research with topics such as "Korean legal cap on phone subsidies" and "indie-film audience prediction" at Sungkyunkwan University informatics research competition.

My latest research focused on optimally "visualizing regression data". It was in continuation to formal research on "indie-film audience prediction", to improve its academic value. The original research solely focused on regression and concluded that domestic movie enthusiasts' opinions and foreign index was not significant in predicting the number of audiences of indie-films that are imported to Korea. It also revealed and discussed how other variables impacted the regression model. In addition to the visualizing part, it elaborates the effect of genre being an "Animation" on other variables and the number of audience members.

Although they both hold their own academic value, I felt academic thirst that I need more skills and knowledge to produce more impactful results. I would like to perfect myself with the curriculum offered at the Data Science Master's program at Indiana University, participating in research such as "statistical arbitrage via news sentiment data analysis".

I learn materials that I enjoy to study extremely fast and can produce meaningful results that stand out. Specifically, I self-taught programming and math, I created a [shuttle bus tracking app](#) with a real-time arrival time prediction for Sungkyunkwan University and still manage it. I created a high-quality [game](#) using a physics engine, outsourced full functioning websites, and taught myself machine learning. Moreover, I am equipped with domain knowledge of economics and diverse programming skills that suits the need of data science program research at Indiana University.

I believe that my research experiences regarding data analysis and a unique background can make a significant and positive contribution to the research currently being conducted at the Data Science program of Indiana University. I very much look forward to starting my research career at Luddy School of Informatics, Indiana University.