

Statement of Purpose

I think I am a lucky person to be born in the era of computing and technological revolution that improve the quality of life and gave humanity the capacity to progress with enormous speed. The rise of computer technologies and science had an impact on all fields, from health to education. I am marveling at the perspectives of dedicating my future career to this sharply growing sphere. I will never forget how I started my journey in this field. In my 10th grade, I implemented a Bubble Sort Algorithm on Free Pascal. In university, I learned to implement real-world applications and work with sensors and actuators. Whenever I run the code and see the right results I feel that I can implement everything. The hard work and persistence developed the feeling of love for Computer Science. The passion and strong desire to impact this field drove me to apply for a Masters in CS at Nazarbayev University and continue my research career.

This interest led me to explore different areas of Computer Science during my undergraduate studies at Nazarbayev University such as the Internet of Things (IoT), Software Engineering, Database Systems and Machine Learning.

The summer after my junior year I worked as a software engineer intern in Kazakhstani IT company called Business and Technology Services Digital (BTSD). Our team of two students worked on the implementation of the messenger bots (Telegram Bots). We built RestAPI using Spring Boot Framework on Kotlin. Secondly, I used Object-Relational Mappings that allowed us to interact with the database through plain class objects. The gained knowledge in the course "Database Systems" helped me to construct a quality system and get positive feedback from my supervisors.

Eager to explore the field of the Internet of Things (IoT), I decided to choose Smart House Prototyping group project for my Senior Project I and II courses. The work of our team composed of three students was supervised by Prof. Adnan Yazici. The aim of our project was to develop a smart house prototype with the focus on the intelligent security system, home automation and user-friendly communication between the system and the user. During the work on this project, I learned to build wireless connection through NRF24 Radio modules between multiple Arduinos. The data from Arduinos is relayed to the server through the Raspberry Pi (sync). The server frames the images of the video stream and recognizes the identities of the people that are registered in the database. The unknown people are classified as potential intruders and the user is notified automatically. To overcome the limitation of the database storage capacity, we used ThingSpeak cloud to collect the sensor data and perform the visualization analysis.

Although I have some experience in software engineering, I want to develop my skills to conduct independent research and writing academic papers. I would like to do research in the area of Internet of Things (IoT). More specifically, my research interests are multi-hop sensor networks, data aggregation, development of energy-efficient and reliable communication. I am already working with Professor Adnan Yazici as part-time Research Assistant on his project. And I would like to continue this work during my masters program.

Truly, I am committed to this intellectual journey, and to the Nazarbayev University itself. I have met personally with Adnan Yazici (for Research Project). His research interest most closely align with my own. Attending the Nazarbayev University for Masters in Computer Science is a natural step for me, one I'm prepared to take and work tirelessly for, with both diligence and enthusiasm. I've made my decision. Now, I look forward to yours.

Serik Zhilibayev