

I had the privilege of working under the supervision of extraordinarily accomplished researchers from the most competitive university in Bangladesh, who piqued my interest in academic research early on in my career.

I undertook my first independent research project in collaboration with Professor Shamsuzzoha Bayzid of BUET and Rubaiat Habib Kazi of Adobe Research about a year ago. Visual content has been a communication method since prehistoric times, and today, when we have access to an overwhelming amount of interactional information, it is not only an effective but compact means of portrayal. Based on the premise, I proposed the idea of generating visually pleasing graphical summaries of social media posts for reluctant readers in the form of comic strips. The challenge in this project was eliminating the human component from the initial comic generation as much as possible while still preserving the storytelling aspect of the post.

The multifaceted nature of the problem necessitated meticulous planning and precisely defining the focus that would allow us to follow up on the work with the resources at our disposal. I applied agile methodology to manage the research project realistically that helped my team eventually achieve the research goal. A detailed account of the workflow and results from the research can be found on the project [website](#). We plan to submit this work to CHI 2021. This experience helped me understand the interaction between interface design and human cognitive processes, setting the ground for my future research endeavors.

At this point, I wanted to pivot into another realm of computer science. I attempted to self-teach myself ethical hacking by setting up my own security lab inspired by the book ***The Network Security Test Lab***. I learned how to locate open cameras on the internet using Google hacking. I was mesmerized by a live video of a vacation home somewhere in Denmark when it dawned on me that I was not aware of the practical implications of my intellectual endeavor.

I decided to forgo the script kiddie route and seek out professional guidance. I collaborated with Prof. Tanzima Hashem (Elsevier award winner in the field of internet privacy) on an independent study that addresses the need for location-based services to evolve, according to the shift in travel priorities introduced by the emergence of Covid-19. Our goal is the privacy-preserving evaluation of a novel type of query called the daily itinerary scheduling query. The query request travels from the initiator to the central server through a hop-by-hop route, where the next relay selection is based on personal trust between users and every intermediate node in our system forwards only the most social-distance compliant trips. The challenge of this approach lies in the computational complexity of sorting and forwarding the combined trips. We developed efficient query processing algorithms and are currently testing our implementation upon analyzing 36 million check-in data from the Gowalla dataset.

I am currently an iOS developer at Samsung research and development. I am responsible for building the video call module for FirstNet PTT- a mission-critical-push-to-talk app used by public-safety agencies throughout the U.S. During my software engineer Internship, I was

responsible for software migration. I contributed to the largest customer onboarding (Royal Dutch shell) in our platform.

As a software engineer, I found it concerning how security is always an afterthought in large-scale development. My research vision is to contribute to secure software development by gleaning insights from data mined from software repositories. Research that converges the realm of user psychology with the domain of security fascinates me. I am interested in building practical privacy-enhancing systems that are informed by psychological models of consumer decision-making. I am interested in the works of Professor Maleknaz Nayebe and Professor Zhen Ming because of their focus on leveraging data analytics to shed light on practical research problems, which closely aligns with my research interest. Professor Marin Litoiu's work that facilitates collaboration between developers and security analysts is also an area of interest for me.

My academic and professional experience instilled in me a leadership capability that influenced my career goal: to lead a security research lab in the industry. I believe the breadth of expertise and computational resources that the Department of ECE at York University offers will be conducive to the metamorphosis of a young researcher.