

STATEMENT OF PURPOSE

For a very long time, my ideas about cloud computing was that it was the basis of a few services I frequently used, Dropbox and Netflix. For me, the cloud was just a virtual space to store my data. Thus, when I stepped into my role as a full-stack application developer at JP Morgan Chase after graduation, it was an eye-opening experience to witness cloud computing in its true essence. What I was witnessing was an under-the-hood look at gigantic applications, all held together by a group of miniscule, independent components – Microservices. Combining them with the idea of Domain Driven Design, there was a major paradigm shift I observed where business logic and solutions were driven by technology. It was a sophisticated way of building applications, which strongly piqued my interest as a software developer – Cloud-computing was the reason any of this was even possible!

I was compelled to learn more about this, and picked up a few books on these topics. It was basically an autodidact approach, where I built, experimented, failed and rebuilt small applications. Eventually, I succeeded in completely revamping a legacy application to put it on the firm's private cloud, as a part of my professional project. The old architecture had been using Adobe Flex on the front end and Spring MVC on the back end. I ported the front end to the JavaScript framework ExtJS, while the back end was moved to a Cloud-native architecture using Spring Cloud & Spring Boot at the core, and incorporated various other technologies in the application lifecycle to fit the 12-factor application methodology. Since it was one of the first applications to get revamped, I had to consult the Cloud-architect of the firm at every step of the way.

These interactions made me learn a lot about the inner workings of the private cloud, DevOps and the microservices architecture. Then, during a conference on the cloud roadmap, the speaker promulgated the firm's planned improvements to the Platform-as-a-Service offering in great detail. Hearing this talk made me realize that I had just touched the tip of the iceberg and there was an infinite potential and thrust towards XaaS – Anything as-a-Service development. I aspire to be at the forefront of such endeavours, and thus wish to pursue a Masters in Computer Science, with a specialisation in Cloud Computing, from the <Univerisity Name> as I strongly believe that this would be the first step towards getting to the position I envision for myself.

At J P Morgan, my association with the Operations Technology Servicing team has led me to work on development and maintenance of a tool which handles various customized workflows required by the bank's operations teams. Applying agile and lean methodology for the Software Development Lifecycle, I owned a business requirement end-to-end. I was responsible for its development, testing, deployment and maintenance. I communicated with the business stakeholders on a regular basis to analyze the business requirements, which has shaped my ideas on communication, networking and professional conduct. Due to my persistent efforts, I was allowed to take a leadership role in this process, which provided a holistic mould to my technical skill set. I am spearheading the architecture design of this new system, and additionally responsible for the seamless migration of the current system to the new one. My dogged approach towards work earned me laurels like team-level 'Shining Star' in Q2 2017, and have received the very prestigious 5-keys of Recognition, awarded to an employee by a peer/stakeholder for excellent service 7 times.

Although the predilection for cloud computing drives me to undertake various technical endeavours, my interest also tilts towards latest technology game-changers like Big Data Analytics. To have a first brush with this technology, I interned at TransUnion Software Solutions, in the role of a Big Data developer. Working on a variety of technologies like Hadoop MapReduce in Java, Hive and Pig Scripting, I acquired interesting insights in Data Analytics and the Hadoop ecosystem.

The project I was working on aimed at migrating one of their product's algorithms from SAS to Hadoop, and once done successfully, reduced the process time by a significant amount.

My success in the above-mentioned projects and assignments was only possible due to the solid foundation set during my undergrad with courses like basic cloud computing, distributed systems, computer networking, operating systems, algorithms, data structures, cybersecurity and myriad programming languages. Building upon my technical acumen, I worked on my final year project where I analyzed HTTP/2 protocol for vulnerabilities. The objective of this project was to discover vulnerabilities within the protocol for popular cyber-attack models. For the scope of my final year project, I researched on Man-in-the-Middle and Denial of Service attacks. For this, I had to setup an HTTP/2 cluster in the laboratory. Since it was a relatively new protocol, there were no standard distributions for it, and thus got my first serious brush with open source frameworks. Along with my project thesis comprising of my detailed analysis for both these attacks, I penned a research paper titled: Man-in-the-Middle Attack in HTTP/2 which was published at the 2017 International Conference on Intelligent Computing and Control.

A major part of my upbringing included a push towards an eclectic range of extra-curricular activities. During my undergraduate, I chaired the Student Branch of the Computer Society of India (CSI) of my college. Being the leader of a 15-person committee, my responsibilities included overall management of the committee, finances, membership, organizing events and also publishing an annual magazine. I also was the CSI college ambassador representing the college at the regional CSI meetings. For my contributions both at college as well as regional level, I had the honor of receiving the Highest Committed Student Branch Activist award from CSI at a national level. This entire experience was uplifting and has encouraged me to take up such opportunities at my job. I believe that these experiences have taught me important professional skills, especially around networking, time management and decision making.

My career goals and aspirations have been heavily shaped by my job experience at JP Morgan Chase. While I really enjoy being a full-stack web developer, I feel that this is the right time for me to step out of my comfort zone and work towards my passion towards cloud computing and research. I envision myself to be at the forefront of research and developing solutions to interesting technological challenges in the field of cloud computing such as true serverless computing, implementing better scalability algorithms using Machine Learning, and improving the viability of the Gaming-as-a-Service concept. Eventually, I plan on getting to a more design oriented stream such as system architecture. I envision myself being in an authoritative role where I can combine research with application and design modern systems.

Deciding to step into the Graduate program at <University Name> feels natural in a similar way. I have a firm belief that I would be one of the most suitable candidates for this program, and I have the right vigor and acumen to excel at the course. I also believe that I would be able to make significant contributions towards <Research ventures>. These ventures are a major factor for my decision to choose this prestigious program, and I have no doubts about this program being the right one for me.