

## **Statement of Purpose**

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The idea of technology blending seamlessly into our lives with a subtle ingress rather than a histrionic entrance, leaving behind a trail of discernible impact, enthralles me. Ever since my first tryst with a computer, I have been in awe of the enormous power of technology. I was captivated by the power of the Internet, fascinated by the ever-increasing speed of microprocessors and amazed at the ability of a little silicon wafer to store infinitesimal amounts of data. An undergraduate degree in Systems Science has only whetted my appetite for unleashing/harnessing the immense potential of Software Engineering. Technology is a conundrum for the uninitiated and I aspire to bridge the gap by creating an unpretentious interface. The future of computing lies in its simplification and accessibility to all. To develop an easy to use interface, which compiles both server, side and client side logic for the layman is a nascent dream for me. Software Engineering encapsulates the idea of alleviating the monotony of repetitive and complicated tasks through a single line of code. An MS in Software Engineering and Distributed Systems will empower me with profound knowledge, skills and fortitude to give wings to this dream.

The journey to fulfill this aspiration began with my undergraduate study in Systems Science at the Indian Institute of Technology (IIT), Jodhpur. Competing with a veritable army of engineering aspirants, my perseverance and passion to explore the entire spectrum of Computer Science bore fruit when I was able to crack the coveted JEE Exam. One of the premier Engineering Institutes in India, IIT provided a platform to delve deep in academics and work on exciting projects. The Sophomore year introduced me to the basics of programming and mathematics, with deep insights into data structures and algorithms, Linear Algebra, Complex Calculus, and Probability & Statistics. Courses in Object Oriented Analysis & Design and Software Engineering provided me with a set of tools to breathe life into my under grad projects.

In an attempt to collate and test my learning, simultaneously trying to concoct another everyday technological advancement, I worked with Prof. Dr. Gaurav Harit towards the development of an interface to extract textual information from a video. Aimed at helping visually impaired people get easy access to texts, I incorporated a functional Artificial Neural Network (ANN), an optical-character-recognition (OCR) and text-to-speech (TTS) into a single software interface. I gained insights into ERP software while working on a Financial Grant Management System for my term paper where I used an Object Oriented Principles (OOP) approach, to develop a front end using Bootstrap, HTML and CSS. As a part of my undergraduate thesis, I undertook Digitization of Hand-drawn Flow Diagrams. Researching to develop an algorithm to digitize hand-drawn flow diagrams from text and render an aestheticized image made of polygons and connectors with digitised text was a transformative experience. The sense of accomplishment and immense satisfaction of developing a layman friendly interface with a tangible social impact was unparalleled. I made a quantum leap in my learning and real-world industry exposure through my

internship in ERPNext, a start up in the ERP domain. Our team developed a chat-bot using tools like ANN and language processors were put in play using PostgreSQL, Python and Javascript.

Pursuing my goal of using my undergraduate learning to solve real life problems, I joined Go-Jek as a Product Engineer. A technology start-up based in Jakarta, Go-Jek provides logistical services across 16 sub products for more than 50 million monthly active users. Here, I got the opportunity to be a part of several critical projects redesigning legacy systems for handling the scalability requirements using Agile Software Development Principles. Redesigning the home screen, we made the big shift to module-based screen, serving information in the form of cards. Internal push based event driven architecture was used to scale this up to 150,000 requests per minute. We exploited the efficiencies of Kafka event queue, the concurrencies provided by GoLang and high availabilities guaranteed by redis-cluster to devise this robust system. I also worked on redesigning the order history management system, which currently handles more than 5 million bookings per day. We employed careful decision-making in putting up Clojure & GoLang, PostgreSQL & Cassandra, and RabbitMQ & Kafka. Thus, \_\_\_\_\_ has been at the core of my journey as an IT professional where I have been deeply entrenched in .....

Throughout my academic and professional journey, I have looked for opportunities to use my theoretical and experiential learning to solve industrial problems. While IIT and my subsequent industry experience gave me an opportunity to think out of the box, I find myself longing to explore technology without the barriers presented by the existence of the box. As we move towards a completely digitised and wired world, I believe that an MS in Software Engineering from your illustrious University will enable me to script savvy technological advancements leaving subtle impressions over everyday life.

Pioneering in research and innovation, Groningen University is certainly opening portals to the future. A trailblazer amongst European Universities, it is globally recognised for its cutting-edge technological studies in Computer Science and applied research. The state-of-the-art infrastructure at the University Computing Center with several visualisation facilities like reality Cube, reality Theatre and Peregrine high performance cluster promises to be an exceptional learning experience. I look forward to exploring Computing theories under the able guidance of Nobel Laureates like the esteemed Dr. Ben Feringa and Dr. Fritz Zernike, who are undoubtedly experts in their domain. Further, I wish to deepen my erudition in software architecture, cloud computing, parallel computing, technical debt, embedded systems and object oriented design and perhaps work at the research lab at the renowned Bernouli Institute for Mathematics, Computer Science and Artificial Intelligence. The program structure incorporates joint research projects with industry partners to provide real-world experience, which will help me to consolidate and accelerate my learning. I am confident that I shall acquire necessary expertise in understanding and formulating the requirements for systems, identify the entities, their behaviours and relationships by using optimal technical stacks and scale. The socio-cultural fabric at the University aligns

with my values as an individual and I would love to enrich myself with the vast diversity of student experiences on offer. Also, I find that I bring with me a zeal for extra mural activities, having been an active participant in all community events in my academic and professional sphere. An avid blogger I believe in sharing my experiences and knowledge through my blog, ( ..... Provide Link)

Life is continuous evolution and learning; I am confident that an MS from the University of Groningen, will equip me with the necessary computing skills to push the boundaries of technological innovation. To grow as an individual and a professional, and not just remain a figure on the college fact sheet, but create something of lasting value for the society and myself. Finally, the credibility, experience and confidence of a Master's from Groningen are all I need to chart my own course in the futuristic software domain.