Academic Statement of Purpose
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"Data are becoming the new raw materials of business" – Craig Mundie
When we look around today, the gravity of the statement intensifies. I believe my fascination towards Data Science as career field first began when I came across a TED talk on "Technological innovations making World better". It showed how data insights helped making smart decision on complex issue of channelizing the scarce resources to the right targets. With a passion to solve real world problems innovatively, this revelation thrilled me. Since I enjoy inferring valuable insights derived out of data and I like programming, I see career in Analytics as my natural choice for MS degree.

During my undergraduate study in Biomedical Engineering, I worked on developing Clinical Decision Support System. I created an innovative algorithm on MATLAB for fully automated and unsupervised machine learning. **The work was published in International Journal of Engineering and Technology.** I created a GUI for computer-aided diagnosis with 97% specificity and 99% sensitivity, to eliminate the risk of false diagnosis. The iterative algorithm applied mathematical model of Delaunay triangulation along with K-means cluster analysis and Watershed segmentation. Mammogram's histogram and statistical properties were used for feature extraction. For early detection of breast cancer, it had unique ability to detect invisible micro calcification (pre cancerous stage). This research intrigued me with the applications of machine learning.

As a student I was engaged in various extra-curricular. I was Coordinator of International and National events during Technical fests. Above all, I have a passion to serve society with technology. I also served as Head of National Service Scheme (NSS) and came up with innovative solutions like designing low cost solar cooker in NSS adopted villages of Tamil Nadu State of India. After my Bachelor's degree, I got a job as an Analyst-Industrial Engineer at Insmart Private Ltd. I maintained and trained the staff on Enterprise resource planning **(ERP) software** called IQMS and Plumsoft. Also I performed Statistical process control, Capability study on **Minitab**. Alongside I prepared for Civil Service Examination. I learnt subjects ranging from STEM field to Social sciences like-Economics, Geography, Anthropology, Statistics and Current affairs. I scored among the top 0.01% out of 4,50,000 (half a million) test takers. However this enriching experience brought me closer to realization that I love investigating and analyzing the data, a common factor in all the subjects that I enjoyed the most. My aspiration for a career in Analytics got reinforced.

For a brief period of time, I worked as Healthcare Analyst Intern at CARE hospital, Raipur. I analyzed the data for maintenance of medical devices, Electronic health records (EHR) and health insurance claims in the hospital, to meet the quality standards of National Accreditation Board of Hospital and Healthcare provider (NABH) certification. Soon, I got an opportunity to work as Technology Consultant to State government of Chhattisgarh, India. Physical injury and human mortality by elephant attacks is a serious issue in the State, were 200 people die every 5 years by elephant's attacks. This was a unique opportunity for me, where I was responsible for studying the data on human mortality by elephants. I worked extensively on statistical analysis on Human safety aspect of engineering projects of Forest Department like- solar bijuka, master barricade and satellite collaring. Data was studied from 2400 villages to investigate determinants of safety seeking behavior of social communities to correlate with the engineering projects effective in driving the elephants away. This analysis played a key role for me to design a device called **'Elephants lights'.** The **patent application** for it is **filed** and pending with Government of India. At present, the device is being used by State Forest Department. Ministry of Environment, Forest and Climate Change funded the device implementation with USD 35,000. This strengthened my belief in importance of data driven decision-making.

I took a hiatus from work when I got married and moved to Michigan. At this stage of my life, I want pursue a Master's degree with focus on Data Science to catalyse my career progress. University of Michigan, Ann Arbor is one of the most prestigious Universities of the world. This Year the University has come up with this new program-MS Data Science, which also happens to be of my outmost interest. It is a unique program in the sense that it offers opportunity that will help me pursue my research interests and befits my skill set. The curriculum is one of the most well crafted one I have seen as yet. The fact that it covers all corners of data science with practical approach is what makes it ahead of the curve. Moreover, **MiCHAMP**- **Michigan Integrated Center for Health Analytics and Medical Prediction** project's description sounds too good to be true for me to take my Bachelor's project further on Cluster analysis and Decision Support System. I am excited at the prospect of learning under erudite faculty **Professor- Alfred Hero** whose projects and research such as **"Subspace processing for imaging and information fusion"** has left me fascinated. The **MIDAS (Michigan Institute For Data Science)** group's projects such as one by **Associate Professor Jenna Weins- "Modeling disease progression and predicting adverse outcomes"**is the project, that given a chance, I would like to contribute actively in such research endeavors. **MIDAS 2018 Symposium's theme- Serving society through Data Science** is in reality my motto to study MS in Data Science at first place. My experience as a Technology Consultant with the State Government, Healthcare Analyst and Analyst-Industrial Engineer

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has given me a broad foundation and strong reasoning to explore and pursue this MS Program. The excellent research facilities like the MIDAS would facilitate my research pursuits in Advanced Analytics and Healthcare analytics. I look forward to mutually benefitting interactions with peers from culturally diverse backgrounds that would serve to broaden my perspective. I hope the Admissions Committee recognizes my drive to excel in my academic and professional undertakings and issues an affirmative response. The honour of being associated with such an esteemed institution would be an additional motivation as I move towards realization of my aspirations with suitable financial assistance.