I have always wanted to use the resources efficiently. In my mechanical engineering undergrad program I realized that this could be achieved effectively through rigorous research. In this article I have tried to elaborate my journey which prepared me in this direction. I have also discussed my aspiration to continue exploring the topics of my interest at an advanced level at Michigan Tech.

During my voyage through the course curriculum of mechanical engineering I developed interest in applications of numerical analysis in heat transfer and fluid flow. Consequently, I opted to work on a project that used numerical modelling and simulations. It involved determination of optimum residence time of slabs in a reheat furnace. While working on this I developed aptitude for using literature review and software tools to advance in research. This came in handy when I worked on an industry based project with one of my professors. Our aim was to develop an empirical relation between the RPM and power produced by screw turbines. I used ANSYS FLUENT to analyze the performance of turbines based on various flow parameters. I went on to present these results at a national conference titled 'Sustainable Mechanical Engineering Today and Beyond'. These events inspired me to pursue a career in research. I believe that masters at Michigan Tech would lead me towards my goal.

For increasing my experience in industrial applicability projects, I interned at Aditya Birla Group Corporate Business Excellence Pvt. Ltd. The aim of this unit was to guide the manufacturing and service sectors of the conglomerate. Here I was assigned the task to develop a model to determine optimum parameters in a cement manufacturing mill. To achieve this, I used neural networks and global optimization in MATLAB. Finally, I designed a desktop application that calculated the optimum parameters. Here I learned to apply the theoretical concepts in practical circumstances. I plan to foster the necessary skills at Michigan Tech, to make significant contribution to the industrial research.

In my seventh semester I was selected to be a 'Teaching Assistant' for the course 'fluid mechanics'. My responsibilities were to grade class tests and prepare question banks. This period helped me understand the challenges involved in academia. Furthermore, I developed an interest to pursue a career in academic research. In this regard, I believe Michigan Tech would be the perfect place to sharpen my skills.

I want to explore the premises of heat transfer, fluid mechanics and energy systems in depth. Therefore, I went through several of the engaging works by the professors at Michigan Tech. I found Prof. Song-Lin Yang’s work on ‘generating and characterizing filter substrates for lattice Boltzmann analysis’ to be exciting. The discussion on substrate generation and measurement algorithm engrossed me the most. Also, the work by Prof. Mahdi Shahbakhti on ‘predictive control of building-to-grid systems’ was appealing. The method of bidirectional predictive controller to reduce the electricity cost galvanized the interest in me. I wish to be a part of their research groups.

To sum up, I am passionate about the themes discussed above. My ultimate career goal is to pursue research in these areas, either in academic or industrial environment. When I studied the works of the professors and the achievements of the students I could relate them with my objectives. Motivated by this, I chose Michigan Technological University to cultivate the competency for research and overall development.