STATEMENT OF PURPOSE

I was always interested to know about complex and intricate mechanisms involved while making any product. To satisfy this interest, not only did I choose the undergrad program in mechanical engineering but also tried to go the extra mile. Rather talk about why graduate program like Would like to continue discovering new concepts at a more advanced level.

I was fortunate to work on three projects during my undergrad program. The first was on Development of a Universal Greenness Index for Buildings through Multi-Criteria Decision Making of their Life-Cycle Parameters. I implemented analytical hierarchy process on MATLAB to establish the rating system for buildings. While enjoying working on the project, it introduced me to MATLAB and its vast functionalities.

As a part of an elective I got fascinated by applications of numerical analysis in heat transfer and fluid flow analysis. Hence I chose the second project that involved determination of Optimum Residence Time of Slabs in a Reheat Furnace. This was done on fluent and the primary focus was radiation heat transfer. The project resulted in reduced computational time for obtaining residence time compared to previous implementations.

I also worked on an industry problem with one of my professors. An organisation wanted CFD analysis for deciding the parameters of screw turbines. . I used FLUENT to analyse the performance of screw turbines based on various flow parameters. The output was an empirical relationship between RPM and power produced by the turbine. I went on to present these results at a national level conference.

I interned at Aditya Birla Management Corporation in my last semester. They provided service and support to all the manufacturing plants of the conglomerate. My job was to predict energy consumption in cement manufacturing process. As a part of this, I used neural networks to predict the energy consumption in cement manufacturing process. Later on we used global optimisation to get the optimum parameters. In addition sensitivity analysis was done for energy consumption with respect to all the operating parameters. The project culminated with me designing a desktop application that uses the feasible extreme values of all the parameters as input to calculate the optimum parameters.

In my seventh semester I was selected to be a Teaching Assistant for the course ‘fluid mechanics’. My job involved suggesting minor changes to coursework, grading class tests and on and on. This period helped me understand the challenges in academia. Additionally I developed an interest to pursue a career in the field of academia. Considering this, I believe Purdue University would be a great place for me to hone my skills.

I am interested to do research in the branches HVAC, Refrigeration and Heat Transfer. After going through several interesting works of the professors, I found Prof. James E. Braun’s work on building energy system optimisation exciting. The process of applying distributed optimisation algorithms in multi-agent framework for controllers intrigued me the most. Moreover as I have mentioned above most of the topics I am passionate about and worked on, align in the same direction. Purdue University would be the perfect place for me to learn more on these topics while doing my research.