CDS International Academic Internship

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# Interning at

Department of Mechanical Engineering, University of Washington

# Under the guidance of

Prof. Anirudh Vashisth

# Report contains the updates from

16 June 2023 to 30 June 2023

1. Meeting with Professor on 19 June 2023
   1. Professor had given me the task to make a Design of Experiment for the subsequent stages of lab experiments we would be performing. I designed the values to be given for the experiment and also submitted a report mentioning the details and reasoning behind it. Had an involved decision with Professor on few aspects of the report such as how we scale the levels in experiment design to the real physical values.
2. Meeting with Professor on 21 June 2023
   1. We realised that the way we were looking at the code, the problem was not the way it was supposed to be done. We were thinking of an approach where we would just take all the data once and then apply the algorithm to get a final point that would be the answer but actually, this kind of problem work is that we have to take a subsequent value and feed it to the model until convergence. This was a BIG turning point in the internship.
3. Meeting with Professor 26 June 2023
   1. Once we knew the path we had to work on from the last meeting, I looked up the libraries that implement the model. I got a few implementations and did some toy codes with those libraries for our dummy data. I also discussed some parts of libraries we might have to customise ourselves for our problem. Apart from the coding work, PhD under the professor mentoring me also shared the new data from the experiments. Before the next meeting, Professor asked me to get ready with the code that should suggest our next point of evaluation, chugg and play with various options available in the library.
4. Meeting with Professor 30 June 2023
   1. I developed the code to suggest the next point of evaluation. Explained the code to Professor. Professor asked me to try few other types of implementation with our real data. We were dealing with two different kind of samples (materials), this time we also discussed the results for the second type of material. Professor asked me to look into my code and try to make it the best I can make. I also presented a short literature survey that had the same kind of application.

The report reflects the progress made, the concerns raised, and the directions provided by Prof. Vashisth. The report captures the key discussions and outlines the subsequent tasks to be completed, it does not include the specific physics, code implementations, theory and other details about the project.