Fall 2017 Research Plan

1.) Write a brief outline of your research plan:

Our research aims at creating an algorithm that produces a logic formula that can be used to explain high-level causes for errors deep in the method call sequences and it can also be used to prevent the program from executing those inputs that cause the failure. Eventually, an integrated tool for debugging can be built to generate this formula which can be used by developers.

My role in this research is to improve the algorithm. I will first learn about how the algorithm works, test it rigorously and analyze its performance in the unit tests. I will then learn about how compiler works and apply my knowledge to improve the formula. Then, I will rerun the unit tests to compare the results, as well as trying to understand the limits and possibilities of the algorithm.

2.) What do you hope to learn and achieve by the end of the semester?

I want to experience the research process and procedures and develop my research skills. I hope to explore the field of Programming Language – Formal Methods - Software Engineering, understand the cutting-edge research direction of that field and learn about the applications of software debugging tools and how they work. I also hope to learn more about compilers: what affects it may have on the programs.

I hope to find some interesting facts about program analysis and contribute to my mentor’s research. I hope I could make a difference on the final paper.