

Finite Element Methods

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1

The primary learning objective is to construct a software implementation of finite element methods. This will continue the research that I conducted last semester, but focusing on the computational implementation more than the mathematics of the method.

2

My responsibilities are to understand the mathematics that I researched last semester, and to construct algorithmic implementation of the mathematics. I will discuss in weekly meetings with Paul the implementation that I am working on, and the progress that I have made. My final project is completing an implementation of a finite element analysis program, that can be used for solving PDEs in two dimensions, along with documentation of the code.

3

I will meet and discuss the progress that I have made on the project with my faculty sponsor weekly, and feedback will be provided at those meetings. My performance will be evaluated by my understanding of the mathematics, and the quality of the simulations produced by my implementation.

4

I will demonstrate what I have learned in both the final product of the code, along with a short paper that goes into detail on the algorithms that were implemented. The final code will be due at the end of the independent study.

5

We have arranged to meet weekly on Wednesday afternoons, then we are also able to communicate over email.