Fall 2009 Research Journal

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11/2/2009

I have learned many things this quarter during my introduction to the research group. My first meeting, the only knowledge I had on the subject was from undergraduate level quantum mechanics classes. I found that my knowledge was woefully lacking, but initially reading the papers that have written previously helped expand my grasp of the material somewhat. In spite of this, I'm finding now that I wish to get further into the work that is being done, so I can gain deeper knowledge of the problem.

Our initial project as junior members of the research was to take a learning test, and also to introduce ourself to Latex. My learning test confirmed that I learn best by reading, which I would agree with, but it also allowed me to say something about myself (the mathematical autobiography) and everyone in the group read it, so it was an introduction to the rest of the group as well, allowing me to say what I wanted about myself.

During this time I was sitting in the research group meetings and although there were many things that I wasn't clear on, the opportunity to ask questions to clarify things was available. As the quarter went on, I got more comfortable in the group and asked more questions, until the picture of what we are attempting to do became more clear. Now I feel confident in my ability to discuss the problem with other members of the group, which is a major step forward from the beginning of the quarter. After the initial project, we were given a programming assignment. Dr. Mohlenkamp asked us to write a program in python to calculate the determinant of an inputted matrix by moving down the first column of the matrix. Initially, I wondered why we would use python instead of a more common mathematical language like MATLAB, but then once I started the project it became clear why this choice was made. I was introduced to SciPy, which gives python as much functionality as MATLAB, but without the overhead from running MATLAB. Once this was completed, we were then tasked to apply this program to strings. I am still working on this project, and hope to have it complete by the start of winter quarter.

I have learned many things this quarter, both about the project, and about collaborative projects in general. It has become clear to me how important that presentation skills are in mathematics, which comes as a surprise to me. The confidence that the presenter has in their knowledge of the material comes through in their tone and body language. This makes the presentation seem so much more meaningful, if the presenter seems assured of the knowledge that they are presenting. Noting this seems to be an unintended but useful consequence of being in the group.

This quarter I felt my ability to contribute to this project grew dramatically. Over the winter break I am going to continue working with getting comfortable using python and attempting to finish the project that we were given on determinants. I also want to continue reading more of the papers, so that next quarter I can have an even stronger grip on the project moving forward.