Mathematical Autobiograhy

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To begin the story of my mathematical path, you must begin by understanding that I grew up with an appreciation for the applications of mathematics and logic. Born in the sunny and growing state of California in the United States, I had two parents who spent much time with numbers. My dad was a contractor/architect and my mother did accounting. At an early age I learned that math is something useful, not something to be dreaded, often making short work of what would seem to be long and complicated tasks.

This appreciation for math grew in college where I began studying biomaterials engineering. Here I again witnessed the power of mathematics. In an x-ray diffraction course we looked at diffraction patterns of crystals and attempted to compute them. The geometry was quite difficult, but when using complex exponents the problem became quite simple (I couldn't understand this at the time). This experience instigated a career change to mathematics. My interest in mathematics has always been in the solution of other real world problems in other fields. In order to complete my bachelor's degree I had to take a course in modeling and write a senior project in which I studied the Baire Category Theorem.

In my master's program I worked on several projects in combinatorics involving generating functions and spent a year on a project bounding the eigenvalues of Toeplitz matrices and other random block matrices. The odd thing is that at this point I thought that I would go into some field in applied algebra as it was my best subject. One other valuable experience here was finding the joy in sharing mathematics with others, and decided to pursue this further. To achieve this goal I began to look at doctoral programs, and when looking at graduate programs found Ohio University to be a place where I would be allowed to delve into many different areas, and somewhere where I could spend a little time determining which field I wanted to study within applied mathematics.

I have spent most of my time here, at OU, studying some variation of analysis. I have coursework in real and complex analysis, differential equations, numerical analysis, and functional analysis. I have also taken courses in algebra and discrete mathematics. Currently I am working on a regression project, and their applications to crystalline solids and the prediction of their properties, as well as a project involving the distributions of noise in Hopf-Bifurcations and the geometric effects of converting Cartesian noise into Polar coordinates.

There are two main things that must be known in order to understand my desire to work in this project. I wish to spend my entire life learning. One should never be content with the knowledge already possessed, and the other is that knowledge possessed is only valuable if it can be used and passed on to others. One of my great passions is being able to share the things I know with others and for this reason I plan on pursuing a career teaching at a university and perhaps at the high school level as well. The reason for teaching high school is that I regret not having been excited about the academic subject in school. A large reason for this, I believe, is that I was never taught math in a way I could really learn from. As apparent in the Vark questionnaire, I am almost entirely a visual learner, with very few kinesthetic learning tendencies and almost none towards aural or written. Most of my past teachers taught math using large amounts of aural and written methods. In college I learned how to make up for this, but I would have much better off, had I learned in a more fitting style in high school.

I am joining this group with the hope that I will 1, learn something new. The main reason behind grad school in mathematics is to learn and this project is another outlet for this. 2, I would like to be able to learn how to better communicate with others. 3, I am still looking to find a good research topic which fits my skills, and gifts. Finally, 4, I hope to perhaps learn a little about materials science which I have forgotten and to also hone my computer skills. This project is an excellent fit for all of these reasons and hence my interest in it.