A Personal History Statement

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Something was wrong with my education. Or maybe me. I spent countless hours in my childhood doing math problems, coding, writing stories, writing songs, composing music, and so many other creative pursuits. When I was nine I became obsessed with whales. I read, what is to me now, a shocking library of books about them. When I was eleven my dad printed me out an introductory guide to HTML – I stayed up all night making my first web page, titled *Utterly Useless Stuff*. When I was fourteen I took a CS elective at my high school and discovered C++. This was much better than HTML. I was instantly obsessed. The teacher/baseball coach didn't know how to write data to a file; when I asked, he threw a thick reference book at me. Without this knowledge my blackjack game wouldn't be able to save users' scores. That class was my first A in high school. The only other A I'd get in high school would be calculus. I was constantly in trouble for bad grades. I can't say why I didn't, but I often just didn't do my homework. After my sophomore year, my parents sent me to a boarding school hoping it would help. Ironically, this didn't help me learn to do homework, but it did help me get into college. I decided to major in math. I knew myself well enough to fear assigned reading – *Of Mice and Men* was the single book assigned to me in high school I'd actually finished (not counting some I'd read on my own). If I majored in anything other than math, I thought I'd either fail out or have a degree in bullshit. I didn't want to be a "bad" student. I honestly enjoyed going to classes. I worked hard on my own projects. I just didn't do any homework I could get away with not doing. Maybe something *was* wrong with me – but, when it came to getting that blackjack game to work, you better believe I read that C++ reference book.

I did a bit better in my first years of college. WPI only required me to take engineering, math, and German classes. Also, WPI didn't give F grades – it was A, B, C, or "No Record". WPI even allowed me to just continue onto Analysis III after failing Analysis II. I had no motivation though. I was just going through the paces, and weakly at that. Remarkably, a course in graph theory changed my life.

The concept of an Eulerian circuit was described on a white board in this class at the end of my sophomore year. It wasn't the theory that was exciting. It was the fact that I immediately knew I could prove that two riddles I'd been given years before, were impossible to solve. Riddles about drawing a curve without lifting up your pencil. I went home, tried my idea, failed, kept working, succeeded, suddenly understood that professors had something to teach me; suddenly cared about schoolwork, found motivation, was in love with applied mathematics. For whatever reason, this had a momentous effect on me. Two years later I was graduating with high distinction, about to win the the math department's award for best senior thesis, and about to spend my third summer working at MathSoft before heading to grad school to study mathematical biology at UC Davis.

I arrived in grad school with a smile on my face. I felt undeserving and profoundly grateful to be allowed and even paid to learn mathematics. I enjoyed my first year immensely. During my first fall at UC Davis I felt I was behind most students in many topics – I did not mind and decided, if need be, I'd work harder than everyone else. By the end of the first year I no longer felt behind. A few years later, I no longer felt undeserving. I worked hard in graduate school. I worked hard for five years. I did well. My grades weren't perfect, but I was routinely praised by peers and faculty for my aptitude. Somehow I still failed. Somehow I walked out of that program after five years with just an M.S. and no publications to list on my resume. I'd switched specialties twice in my third and fourth years. I was unmotivated by the problems I was solving. I'd lost my way and wandered into specializing in one field after another that sought to answer questions that I did not see the importance in answering. Regardless of how this

had happened, I felt a familiar sense of failure, the one I'd forgotten about all those years ago after seeing that lecture Euler circuits, wash over me.

The thing is, I love applied mathematics and after graduate school, I remembered I also love coding. It took about two months before I was teaching myself Python and, in (a gasping) effort to breath mathematics into my life again, started work on a new mathematical project, the SVG Dendro software package: which was, in a nutshell, my attempt to modernize what I saw as "out-of-date" methodology used by dendrochronologists to extract data from tree trunk cross-sections. I'm thirty-one now. It's been over four years since I left graduate school. I no longer feel like a failure. I feel like a person who wants to go back to school. I'll be re-entering graduate school exactly one decade after I entered it the first time. Reflecting back I sometimes ask myself if I have any regrets. No, I don't think so, but I do have a few lessons I've learned, and I'll end with them. First, publish your results before moving on to a new project – if you don't, as far as any one knows, you didn't get any results. Second, whenever possible, make sure your idea works before you spend too much time coding it. Third, literature review or go home. Last, get a half-time job and see what you spend the rest of your time doing. Maybe it'll turn out to be something you can get paid for. Machine learning, statistics, data analysis: this is what I want to do with my life.