

Statement of Purpose

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A mentor of mine once challenged me to derive the quadratic formula as if it hadn't yet been discovered. Shortly thereafter, I presented the derivation, unfolding a sprawling display of calculations spanning five large whiteboards. My approach to this mathematical challenge typifies my attitude toward life; I challenge myself to discover truth, beauty, and goodness—the three transcendentals that classical philosophers claimed accompany the state of “being”.

In my pursuit of knowledge, I have adopted as a personal motto the admonition to “do hard things”. Before starting college at age 15, I worked my way independently through high-school math, read dozens of classics, and completed extracurricular classes in college-level chemistry, neurobiology, and epigenetics. By age 17, I had completed an Associate of Science degree—and almost every math class offered at my local community college. In my free time, I taught myself computer programming, developing skills that later landed me a job as a teacher's assistant during my first semester at BYU. Dr. Del Scott, the statistics professor who offered me the job, became the first of many advisors at BYU to encourage me to continue doing hard things.

My long-term goal is to use the tools of data science to reduce suicides. Although so-called “big data” techniques have become ubiquitous in many fields, their application in suicide prediction modeling has remained limited so far. The complexity of risk factors involved compared to the relative rarity of suicides mean that existing models lack predictive power. Although the scenario is complex, the challenge is simple: to increase power, increase the number of observations or decrease the number of variables. I foresee two possible solutions: harmonize separate data sources or apply dimension reduction. Would either of those solutions work? Well, they are only rudimentary ideas, but the problem fascinates me, and the solution is something I care deeply about.

By applying to your program, I am taking the next step toward finding a solution. Columbia is a hub of mental health research and a pioneer of data science in that field. During my study there, I hope to work with the Conte Center for Suicide Prevention as part of the Database and Statistical Core or on one of the individual projects, meanwhile expanding my data science toolbox and exploring the fields of mental health and epidemiology. After I have finished, I intend to get a PhD and pursue a career in psychiatric epidemiology, perhaps at one of the stellar mental health companies in New York City such as Crisis Text Line, Spring Health, Quartet Health, or the New York State Psychiatric Institute.

In the right hands, data science has the potential to bring about truth, beauty and good in the world. Earning this degree is the next “hard thing” on my list as I prepare to make a meaningful contribution to human knowledge. I accept the challenge, should you choose to accept me.