Statement of Purpose – Jason Meziere – Carnegie Mellon – Machine Learning

My purpose in applying to Carnegie Mellon for a joint Ph.D. in Machine Learning and (eventually) Statistics is to make the world a better place. Obviously, this sounds extremely trite, but I have several good reasons to believe that machine learning and statistics are the key to this and they are things to get extremely excited about. I’ll share a couple with you here.

The first reason I’ll give is the nature of the study. For an example, let’s consider my original area of study, physics. Those of my peers that go on and continue to study physics are going to do amazing things that are truly going to change the world for the better, and they will all be doing very different things (one may study materials science while another goes to astrophysics), but there is one similar element that is shared between them. They are all attempting to model the universe with a mathematical model, which they will then use and manipulate in whatever logical way they can to produce the most beneficial outcome. They will use tools like Fourier series, wave functions from vectors in a Hilbert space that describe a P.D.F., and any other possibility that is currently available to accomplish this, and surprising and beautifully unexpected results will occur. This is true for all those that are attempting to discover truth, from the physicist to the psychologist. For myself, I want to be a part of this, but I also could never see myself being happy specializing into a specific area of physics. It was then that I noticed that, perhaps, the most good I could accomplish was not in any specific area of physics, but in making the tools that those physicists use. Then those same tools could be used for many areas, not just in physics. This led me to the world of math. In searching for my area of interest, I finally decided on statistics because of the second reason I would like to share with you.

This is the nature of the universe. In a normal course of physics study, the senior year is the first in-depth study of quantum mechanics and statistical mechanics, and it is at this point that you learn that all of your teachers before this have hidden the truth from you and that your entire education up to that point is how to calculate an approximate answer. This is where you learn that the universe is probabilistic in nature. It was here that I realized I had been looking in the wrong place for how to help people. This is why (at least that I know of) there is no perfect mathematical model for anything in real life. These are all probabalistic in nature, and, as such are statistical questions, and, relatedly, machine learning questions. In studying machine learning and statistics, I want to know the relationship between statistics and machine learning, how can we bridge them, and how what we know about each can be used to create more efficient and accurate models. I believe that answering these questions will lead to a better understanding of the world around us and allow us to help others much more than we are able to at present.

In order to give you an idea of why I would be a good fit in the machine learning program, I will address some of my qualifications. I believe one of my greatest strengths in academics is my intellect. I have been very fortunate in my life to enjoy a clear mind with the ability to understand difficult topics on a fundamental level. In addition, this has given me the opportunity to take a wide variety of subjects and incorporate those into my general knowledge as well. Perhaps the only attribute that I have that outweighs this is my work ethic. During nearly all of my undergraduate college experience, I have taken 19 credits or more. What the transcript doesn’t say is that during some of those semesters I was working up to 20 hours a week. I won’t say it’s impossible, but it definitely wasn’t just natural talent getting me through those classes. I worked harder than I thought it was possible for myself to go, and learned a lot about myself in the process. What I feel the best about is the fact that I had a really good GPA. While it’s not about the grade, it still feels nice at the end of the semester to get an ‘A’ on a transcript. I’ll also mention that I have a larger depth and bredth of understanding that the average undergraduate student applying. By the time I’m done with my bachelor’s degrees and minors, I will have ready access to the knowledge I’ve gained that will allow me to look at a problem in several different ways. I have seen this help immensely already in my research. I want to finish with just one final point. I firmly believe that in situations such as this (i.e candidate to enroller) that my goal should be to provide you with completely truthful information so that you can make an informed decision about whether or not I would be a good fir for the university. As such, everything that I have said here has been to that point. I believe that I will do well wherever I go, but feel this university is the best fit for me because of my specific interest in the joint machine learning and statistics approach, which I have not seen any other university adopt. I also feel that I would be a good fit in and an asset to the university because of the reasons that I have detailed above. What I have written does actually represent my true perspective and how I see the world.

On a final note, there are some things that I would like to clarify about my application. On account of the current policies at BYU-Idaho, double majors and double minors are not currently offered. I am appealing this, and things are going fairly well, but my transcript won’t say that I have those majors declared. Also, it is discouraged for teachers to perform research as the university considers itself a teaching institution only, so much of the research is generated by students. Hence, there are not as many research opportunities for students. In fact, there are times when I have gone to several classes to recruit for the research I conduct, and it has gone fairly well. Because of this, I have not published any papers. This may not be true for long, though, as I am fairly close to finishing research on grain boundary evolution.

Thank you for your consideration,

Jason Meziere