**Delta Summer Mentorship 2020**

**STATEMENT OF PURPOSE for OPEN DOMAIN**

**Machine Learning**

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Back in my school days, I happened to get a chance to read the novel *Origin* by Dan Brown. It was an interesting read, but what excited me the most was the character named *Winston.* Winston was a highly evolved AI that served as a companion to the protagonist. Think of him as a literary equivalent to JARVIS. Needless to say, I was very much enthralled with the way the author portrayed the machine.

That was one of the many times I heard about Advanced AI’s and machine learning models. I was pretty interested in coding when I was first introduced to BASIC back in 7th Grade, and I knew I would like to make career out of it, but I didn’t know which area to take in the vast programming domain.

When I discovered machine learning, I was immediately fascinated and motivated to learn about it. As soon as I completed school, I tried to learn as much as I can about the domain. The idea of making machines think and act like humans really drew me in.

I took up the Verzeo Course “Machine Learning with Python” out of interest as a starting point. I learned something out of it, but I felt it was really half-baked. My primary knowledge of ML came from various blogs on the internet, but it wasn’t enough. None of them showed me how I could build and deploy a successful model.

Until the Delta Mentorship Briefing video, I was not planning on applying for Open Domain. But when I saw that Delta was so involved in machine learning, I knew it was the perfect opportunity to widen my horizons on the topic. I know from experience that learning from people who have *been there, done that* is the most efficient way to master something.

**Plans for the Summer Mentorship Duration:**

* I would take up whatever course or materials are required to attain experience and proficiency in ML. Currently, I’m think Andrew Ng’s course on Machine Learning would be a good place to start.
* I will learn the necessary python packages and libraries. The Verzeo course did give me some decent idea, but I want to perfect them.
* I would make good use of the opportunity of the one-to-one mentorship program.
* ML is a wide area with lots of theory. Blindly taking it in won’t be useful. When things are written down, it's much easier to remember and understand them. Hence, I plan to write up blogs or articles about the things I learned. It won’t be like note-taking but rather like I were teaching to someone. If it turns out to be really good or useful, I may post them online as well.

There are already a lot of websites and articles covering doing this already, yet I feel this would really help me in my learning curve.

Google’s AI team came up with a phenomenal chess engine named AlphaZero. It was based off neural networks and reinforcement learning. I’m a fairly good chess player, and when I saw the new strategies AlphaZero discovered, I was mind blown. I was really amazed at the possibility that a neural network could find things which humans couldn’t do for years.

When the delta briefing video revealed that they applied a similar method to program an opponent for the “Bear Factory” game, I was really motivated to join Delta.

**Previous Experiences and Projects:**

My only hands on experience in machine learning comes from the project I did in Verzeo. It is a group project. We were given a data set of car names, model, engine, mileage etc. as factors along with the car prices.

The object was to model an ML algorithm that would predict the prices based on the given data. We tried linear regression at first but later found that random forest regressor was better suited to the model.

\**As of writing this SOP, the project is still under works. It is expected to be completed by 20/4/2020.*