**Candidate Jobs**

* Bioinformatics and Data Science, Moffitt Cancer Center (Tampa, FL): Be able to analyze real-life cancer patient data and provide insights and predictions.
* Machine Learning Scientist, Health at Scale Corporation (San Jose, CA): They have strong ties to leading academic institutions (Sandford, Harvard, MIT) promising to provide transformational healthcare innovations through the use of various machine learning techniques.
* Machine Learning Scientist, Digital & Computational Pathology, Memorial Sloan Kettering (NY, NY): Analyze high-throughput, large-scale medical data in an effort to transform cancer diagnosis from a qualitative to quantitative science.
* Quantitative Analyst, Deutsche Bank (London): Develop and test trading models from historical stock price data, assess risk and gain a deeper understanding of how and why certain models perform.
* Fraud Detection Engineer, Zoom Inc. (San Jose, CA): build and deploy machine learning models and identify new approaches and methodologies for improving the performance

**Candidate Companies**

* Moffitt Cancer Center - Offers comprehensive cancer treatment and also houses a cancer research institute that has led to groundbreaking cancer discoveries.
* Scripps Research Institute - Scripps is the largest private, non-profit biomedical research organization in the United States and among the largest in the world. According to the 2017 Nature Innovation Index, Scripps Research is the #1 most influential research institution in the world
* MD Anderson Cancer Center - One of the largest comprehensive cancer centers in the world, also a degree-granting institute (and where one of my doctors conducted research at).
* Cleveland Clinic - An Academic medical center headquartered in Cleveland, Ohio, it is one of the leading hospitals in many specialties. A good friend of mine (who is a neurosurgeon) is currently conducting machine learning research there, in the field of detecting different brain cancers.
* Berkshire Hathaway - An American multinational conglomerate, which currently generates a significant portion of their revenue from algorithmic trading.

1. **Ideal Job**
   1. I spent the majority of my undergraduate education researching ways of applying computer science and math to solving problems in field of biology, specifically cancer research. Therefore, my ideal job would delve deeper into employing these techniques in order to transform the way people are diagnosed and treated in the healthcare arena. There is a plethora of biological data out there, but in isolation these sources can only answer a subset of problems; consolidating this information into a centralized database via data mining, and regular expressions can give you the ability to address a lot more. For example, you can obtain high-throughput mRNAi data from lab experiments designed to “knock down” certain genes, combine many of these studies with known human pathway information in order to predict genes (proteins) that are likely to be involved in cellular signaling. These candidate proteins can then be the focus of new medications/therapies.
   2. A big issue when it comes to cancer is the growth and spread of tumorous cells. A tumor cell is told that it should grow without bound, and then spread to other areas of the body. Why and how are these cells told to do this? When it comes to how they are told to do this, a large factor is cellular signaling. What happens here is a cascade of proteins “talk” to each other (by increasing or decreasing their concentration), so if we can intervene somewhere along this path, we can consequently control this growth, potentially reducing the size and spread of these tumorous cells.
   3. Using modeling, graph theory and other mathematical techniques and data mining/regular expressions, candidate proteins involved in cellular signaling can be identified. These genes can then be tested in a laboratory setting to see what, if any, effect they have on the growth and spread of tumor cells.