

My partner and I worked very synergistically in this project. A lot of pair programming was done. I would write code and he would tweak it and run it and he would write code and I would tweak it and style it. Both of us touched nearly every file in this project. In addition to programming; however, we also engaged in in-depth theoretical discussions, where we took the problem of applying filter methods to multi-objective reinforcement learning and generated ideas and critiqued ideas. In the early planning stages of this project, our understanding of the foundational pieces of this project were shaped through these discussions and we would follow each discussion with a code session to piece these thoughts together. There were parts that Jeremiah did that I did not do as much of, for instance, he did more work with tensorflow and plotting results, whereas I did more work on the MultiLearn class, the documentation, and the user interface (both CLI and GUI). I designed the MultiLearn Class using Python 2.7.9 and information from our discussion and research. The CLI was also made with Python. The GUI was a Django web application. Together, we designed and implemented a novel method for policy generation through reinforcement learning, building upon our experience with machine learning and python.

One of our early challenges in this project was developing an accurate understanding of the research topics we were approaching. Because this was a very research-oriented, exploratory process, the project we planned and the project we completed were very different. As we developed our understanding of the topics and tried new methods and thought through new ideas, we gained clarity on the direction in which we wanted to move. Some of the successes that we found were that once we implemented our idea, it actually seemed to have some benefit over traditional methods from our preliminary results. In addition to general project management and coding skills, I built up a competency in python package development this semester. I learned how to make a package that is installable using pip and automatically manages dependencies. I also touched tensorflow code for the first time. Though I did relatively little of that because my partner had more experience and was more efficient at it, I feel like the exposure I acquired has benefited me.