The goal of this project is to improve the efficiency of index isurance through better contract design. I developed an optimization-based method to design index insurance contracts, and I hope to evaluate my method using loss data from the Bank of Thailand. Below, I describe several projects that give me the experience necessary to succeed in this project.

In the fall of 2017, I worked as a software engineer for MIT's poverty action lab in India. My role was to maintain and expand the capabilities of a web application that implemented a randomized control trial. The application sent text reminders and mobile phone recharges to incentivize families to vaccinate their children. This project helped familiarize me with some of the practical details related to the implementation of a large scale system in a developing country.

I worked on multiple projects applying machine learning techniques to problems in economics. For my undergraduate thesis, I evaluated the performance of different machine learning algorithms on the task of classifying economics research articles. I was able to improve the system's accuracy to 92% from a baseline of 78%. For my master's thesis, I used a deep learning model to predict job complexity based on a job's textual description. The trained model achieved an accuracy of 82% and was able to predict job complexity for jobs in later years. In addition to my project experience, I have also taken graduate level machine learning classes at UChicago and MIT.

Last summer, I worked at the Bank of Thailand. While there, I focused on improving different aspects of their loss prediction system including evaluation, uncertainty quantification, and prediction quality. I used specialized time-series classification methods, and was able to improve prediction accuracy by 19%. Through this experience, I became familiar Bank of Thailand's loss data and remote sensing data. I believe this will facilitate future work.

Through these projects, I have gained experience in working on software that is used in the field, and many of the practical considerations necessitated by an applied setting. I have also gained experience implementing and refining deep learning models for complicated prediction tasks. Finally, through my research on agricultural index insurance, I have learned about the context and design of such programs. I believe all of these experiences will allow me to effectively work on this project.