karaponder1@gmail.com
San Francisco Bay Area
(205) 908-7431

Kara A. Ponder

linkedin.com/in/karaponder1
kponder.github.io

Employment

Principal Data Scientist **Noodle Analytics** **July 2021 – May 2024**

- Improving supply chain efficiency by applying machine learning to demand forecasting.
- **Engagement Manager for Customer Deployment** (2023-2024). Led a team of 3 data scientists, 3 data engineers, and 2 UI analysts to deploy demand forecasting via a Kubeflow-orchestrated pipeline for an enterprise customer across 40 countries.
  - Developed models and supervised 3 data scientists to develop models using an ensemble of statistical models and boosted decision trees with temporal and hierarchical reconciliation to increase the accuracy over the legacy system by up to 40% and decrease bias to within 5%.
  - Managed customer expectations and timelines, organized data engineers and UI analysts to deploy into and maintain the production environment, and interfaced with the product team to ensure alignment and steer roadmap.
- **Developed Core ML Product** (2022). Enhanced the internal demand forecasting Python package.
  - Added prediction intervals and Shapley values (via SHAP) for additional interpretability of the machine learning forecasts.
  - Added cross-temporal reconciliation, which resulted in a 20% accuracy improvement for customer above.

Machine Learning Researcher **SLAC National Accelerator Lab.** **August 2020 – July 2021**

- Led the Supernova Machine Learning Topical Team in an international collaboration.
- **Deep Learning with a Transformer** (2021). Created a deep learning model using the Transformer architecture to classify transient objects. Python/Tensorflow

Data Science Fellow **University of California Berkeley** **September 2017 – August 2020**

- Explored data science and machine learning applications with the upcoming Rubin Observatory.
- Maintained a data reduction pipeline hosted on a high performance computing center.

Education

University of Pittsburgh: August 2012 – August 2017

- Ph.D. (August 2017) and M.S. (April 2014) in Physics.

University of Georgia: August 2009 – May 2012

- B.S in Physics and Astronomy.

Relevant publications

- **Recommendation System for Follow-Up Observations** (2023). Developed use case driven metrics for an active learning machine learning algorithm to determine objects to follow-up. Python
- **Supernovae and Galaxy Correlations** (2021). Determined the statistical significance of a correlation between Type Ia Supernovae in the near infrared and their host galaxies using model regression. Python
- **Bayesian Modeling of Systematics** (2016). Implemented a Gaussian Mixture Model in a Bayesian framework to determine biases on cosmological parameters from missing data correlations. Python on HPC center.

Languages and Skills

- Python (expert); SQL (proficient); Git (proficient); Unix (proficient); Docker (proficient); R (prior experience); Amazon Web Services including SageMaker and Kubeflow (prior experience)
  - Python Packages: Numpy, Scipy, Matplotlib, Tensorflow/Keras, Scikit-learn, Pandas, Plotly, SHAP
- Machine Learning, Time Series Forecasting, Deep Learning, Data Visualization, Model Fitting, Data Manipulation/Cleaning, Leadership, Communication, Creative Thinking