Matthew Fong

Data Scientist / Researcher

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Professional Experience

AI/ML Programmer Writer at (Amazon Web Services; AWS)   *10/2022 - current*
- Drove the model evaluation, fine-tuning, and prompt engineering initiatives in the development of an internal AI tool for technical documentation, improving typical role production by ~30%
- Studied documentation health metrics dashboards and isolated signals from seasonal trends, sparking discussions on what works to improve user experience
- Spearheaded accessibility improvements, to adhere to guidelines for services doing business with government agencies, resulting in 100% completion for the SageMaker documentation
- Discovered inefficiency in process, tested solutions, and worked across teams to improve AWS onboarding, impacting nearly all new users onboarding using the AWS documentation

Astrophysicist - Postdoctoral Research (Shanghai Jiao Tong University)   *09/2019 - 09/2022*
- Built end-to-end ML Python code to analyze various large-scale cosmological data
- Developed automated testing infrastructure, achieving above 90% reliability in model validation
- Utilized visualization tools, processing multiple simulations containing above 8B+ data points to identify patterns in massive astronomical datasets
- Distributed computing on supercomputer clusters

PhD Physicist/Astrophysicist (The University of Texas at Dallas)   *08/2014 - 05/2019*
- Applied advanced statistical modelling techniques to study how slight changes in characteristics can impact results from simulations and observations
- Regularly gave clear presentations on findings to wide range of technical background audiences
- Participated in the development of CLMM, a production-grade library for processing large-scale telescope data, with LSST/Rubin Observatory team
- International research collaboration with multiple published scientific research papers

Technical Skills

- Programming: Python (7+ years), SQL, MATLAB, machine learning, statistical modelling, data science and analysis
- Machine Learning: Markov chain Monte Carlo, Gaussian Process Regression, multivariable optimization, hyperparameter tuning
- Big Data: Large-scale data processing, distributed computing on supercomputer clusters
- Cloud & tools: AWS, SageMaker, Git, scikit-learn, emcee, pandas, matplotlib
- Professional: Collaborative problem-solving, data-driven decision making, proactive project ownership, proven track record of delivering high-impact solutions, strong research publication record, quick to learn
- Communication: Cross-functional teams experience, clear technical communication, mentoring experience, curious and positive attitude, excellent documentation abilities

Education

Degree	Year	Institution	Field
Postdoc	2022	Shanghai Jiao Tong University	*Astrophysics*
Ph.D.	2019	The University of Texas at Dallas	*Physics & Astrophysics*
M.S.	2017	The University of Texas at Dallas	*Physics & Astrophysics*
B.S.	2012	San Jose State University	*Physics, Minor in Mathematics*