Elizabeth Teng

Final-year PhD candidate and interdisciplinary data scientist specialized in machine learning. Skilled in end-to-end Python development for collaborative open-source projects, designing machine learning solutions, and effectively conveying technical concepts to diverse audiences.

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WORK EXPERIENCE

Northwestern University:

Data Science Consultant   June 2024 - present

- Coached Northwestern researchers from 4 different departments to apply machine learning, data science, and programming methods to effectively tackle research problems in their respective disciplines.
- Provided data science consulting for 7 research projects, including the creation of a predictive model designed to perform effectively with lower-quality datasets.
- Crafted curriculum and trained 20 graduate and postgraduate researchers in topics related to Python programming and data visualization.

Graduate Researcher   September 2020 - present

- Contributed to the object-oriented and open-source Python codebase of a sophisticated astrophysical simulation, which has been cited over 100 times.
- Advocated for and led the creation of a GitHub-Actions-based continuous integration process that validates suggested updates to automatically screen bugs and ensure smooth deployment of upgrades to the codebase.
- Designed, implemented, and deployed a machine learning emulator for high-dimensional simulation data, which requires under 1 millionth of the computing resources used by the simulation. Used PCA from Scikit-learn and neural networks from Tensorflow.
- Developed physics-informed error metrics to evaluate model performance within a realistic, domain-specific context. Designed visualizations of data and model accuracy to effectively communicate findings to the astrophysics team and support an upcoming publication.
- Collaborated with other machine learning researchers from Northwestern's Electrical Engineering department to formulate innovative solutions for emulating time-series simulation data, leading to one publication under review and one publication in progress.

LEADERSHIP AND TEACHING

NU CIERA Machine Learning Club, Founder and Organizer
- Led weekly discussions, workshops, and tutorials about astrophysics applications of ML topics for scientists from different subfields.

Adler Planetarium, Science Communicator
- Engaged a broad audience of museum guests of all ages about astronomy and cutting-edge astronomy research, accompanied by visualizations of observed and simulated data.

EDUCATION

Northwestern University

PhD Candidate in Astrophysics
                    expected 2025

Certificate in Integrated Data Science
from The Graduate School at Northwestern University, issued August 2024

Selected coursework: Deep Learning, Statistical Methods, Computational Optics, Data-Driven Research

Haverford College

BS in Astronomy and Physics, 2020

Louis C. Green Prize, Department of Physics and Astronomy
(awarded for excellence in research and extraordinary contributions to the department)

SKILLS

Python, Numpy, Pandas, Scipy, Scikit-learn, Tensorflow/Keras, Pytorch, Matplotlib, Plotly, Jupyter, LaTeX, Unix/Linux, Git, SQL, bash, R

Consulting, Communication, Bayesian Statistics, Adobe Photoshop, Adobe Illustrator, Mandarin Chinese (intermediate)