Haynes Stephens

Seattle, WA | 415-250-1279 | haynes13@uchicago.edu | haynesstephens.github.io/

EDUCATION

Ph.D. **University of Chicago** | Chicago, IL | Dept. of Geophysical Sciences Spring 2024 (expected)
Courses: Machine Learning, Environmental Data Science, Science Writing
McCormick Graduate Fellowship for highly-rated applicants

B.A. **University of California, Berkeley** | Berkeley, CA | Dept. of Astronomy May 2018
Department Commencement Speaker, Phi Beta Kappa, *Cum Laude*

TECHNICAL SKILLS AND INTERESTS

Technical: Python, scikit-learn, TensorFlow, GeoPandas, Xarray, Shap, Colab Notebook, R, Git

Data Analysis: Geospatial data analysis, deep learning, random forest modeling, ML interpretation

RESEARCH AND ANALYSIS EXPERIENCE

Dept. of Geophysical Sciences, University of Chicago | Chicago, IL Sep 2018 – Present
Graduate Researcher

- Building a novel dual-layer random forest classifier-regressor to predict extreme-weather impacts on prevented crop plantings with high accuracy on occurrencs (recall, precision $\sim 90\%$) as well as damage severities (RMSE $\sim 2\%$).
- Collaborating with an international model intercomparison team to identify key environmental factors of yield responses across large volumes (2+ TB) of geospatial crop simulation outputs using multi-layer perceptron regressors.
- Leveraged the Shap library to interpret the nonlinear and interactive response of ML models to environmental drivers
- Instructed an undergraduate course on Global Warming through an innovative flipped-classroom approach

Center for Robust Decision-making on Climate & Energy Policy | Chicago, IL Mar 2019 – Present
Research Associate

- Developing a GeoPandas algorithm to match historical maps of transmission lines across different timestamps in order to understand the evolution of the U.S. energy system

Dept. of Astronomy, University of California, Berkeley | Berkeley, CA Sep 2016 – May 2018
Undergraduate Researcher

- Created a BeautifulSoup algorithm to scrape and clean a dataset of 1000+ satellites and space junk from publicly available websites as a reference during telescope observations in search of extraterrestrial intelligence
- Authored a Jupyter Notebook tutorial guiding amateur researchers on how to analyze observations from the Automated Planet Finder telescope for possible signals of extraterrestrial intelligence
- Analyzed gravitational microlensing observations and used the Starfinder program to evaluate the likelihood that events could be caused by (so far undiscovered) free-floating black holes

TEACHING AND MENTOR EXPERIENCE

National Science Foundation Research Traineeship | Chicago, IL Sep 2019 – Sep 2023
Fellow - Data Science for Energy and Environmental Research

- Designed and instructed a two-quarter interdisciplinary data science practicum, advising six junior graduate students on research projects analyzing historical U.S. heatwaves and modeling climate impacts on the food system
- Built curriculum for and led a two-week coding boot camp for 54 incoming graduate students in quantitative fields on computing techniques for research
- Created a public speaking course for ten STEM graduate students in collaboration with the UChicago GRAD office

AWARDS

- UChicago Physical Sciences Division Diversity Award 2021
- Ford Foundation Predoctoral Fellowship (honorable mention) 2020
- National Science Foundation Graduate Research Fellowship Program (honorable mention) 2019
- Fundamentals of Teaching STEM workshop series (*certificate*) 2018

ADDITIONAL SKILLS AND INTERESTS

Languages: Spanish (intermediate).

Interests: Road trips, stand-up comedy, essays and autobiographies, tennis.