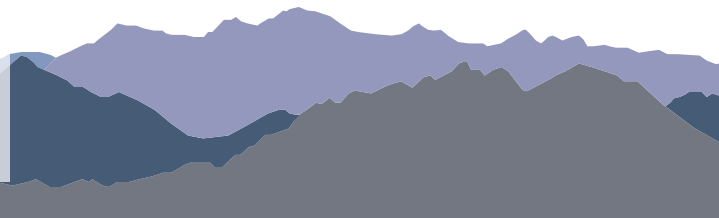# Jackson Fellows

jf787@cornell.edu — jacksonfellows.com

Education

Bachelor of Science   2020–2024

Cornell University, College of Engineering, Ithaca, NY
Earth and Atmospheric Sciences — *Magna Cum Laude*

Research

Seismic Detection of Surface Mass Movements   Spring 2024–Present

Worked with Professor Grace Barcheck at Cornell to build a deep learning model to detect seismic signals generated by surface mass movements. Research funded by the Engineering Learning Initiatives program at Cornell. We are currently writing a paper with our results.

Code I have written along the way includes:
https://github.com/jacksonfellows/seismoslide   https://github.com/jacksonfellows/pickhelper
https://github.com/jacksonfellows/pytorch-seismic-inference

USGS Pathways Internship   Summer 2024

I worked with Dr. Bill Barnhart to develop modern versions of codes that are used to build the gCent (geodetic centroid) earthquake catalog. The goal of the geodetic centroid catalog is to provide an independent constraint on seismically-derived earthquake origin information (generally with lower location uncertainties, especially for depth). I developed Python codes to compute Okada's Green's functions for rectangular dislocations, resample interferograms for optimal earthquake inversions, and run the neighborhood algorithm (a method of nonlinear inversion) to find best-fitting fault planes. In the future, these codes will be open-sourced by the USGS.

EarthScope Undergraduate Research Internship in Seismology   Summer 2023

I worked with Professor Lindsay Worthington at the University of New Mexico to model seismic velocities offshore of Kodiak Island, Alaska. I developed new methods for reducing noise to successfully combine airgun shots and a nodal array for shore-crossing modeling. Check out my internship blog entries here. I presented our findings at the fall 2023 AGU session in San Francisco.
https://github.com/jacksonfellows/research_summer_23

Work Experience

Pacific Crest Farm   Sept. 2022–Jan. 2023

I worked as a farmhand harvesting and maintaining the property.

VMware Inc.   Summers 2017–2020

I worked as a software engineering intern for VMware as a student in high school. I collaborated with a team of developers building a cloud security product. I wrote production code in Python and Go and worked with tools including Docker and AWS.

Skills

Programming Languages
Python, C, JavaScript, Java, Lisp, Haskell, Mathematica, SQL, MATLAB

Technologies
Unix, Git, NumPy, Pandas, SciPy, ObsPy, scikit-learn, PyTorch, JAX, QGIS, Excel

Independent Projects

Project Euler
Ongoing collection of 160+ Project Euler solutions in 9 programming languages.
https://github.com/jacksonfellows/euler

Complex Mappings Visualizer   Fall 2023
Simple tool to visualize $\mathbb{C} \rightarrow \mathbb{C}$ mappings. Try it out here (works best in Chrome). See here for example usage.
https://github.com/jacksonfellows/complex_mappings

Tabula   Fall 2021
Rewrite-rule-based notebook math/programming environment. Implemented with JavaScript in the browser and a Python server for persistence.
https://github.com/jacksonfellows/tabula

F-Sketch   Summer 2020
Programmatic 2d drawing environment based on signed distance functions. Implemented with JavaScript in the browser.
https://github.com/jacksonfellows/f-sketch

Extracurricular Activities

Cornell Varsity Rowing   2020–2023
2022 IRCA Scholar Athlete

Last updated 2/11/2024