Severance Graham

(630) 703-9471
sevgraham.az@gmail.com

Education

University of Arizona
B.S. in Astronomy
Minors: Planetary Science, Physics, Geosciences
GPA: 3.50

Publications

Graham, S. & Volk, K. Uranus's Influence on Neptune's exterior mean-motion resonances. *The Planetary Science Journal*, 2024.

Experience

Undergraduate Researcher
University of Arizona, Lunar & Planetary Laboratory

- Participated in a project to model and map the extent of Neptune's external mean-motion orbital resonances.
- Ran n-body orbital simulations of the solar system and transneptunian objects.
- Wrote Python scripts to plot and analyze the resulting simulation data.
- Published the results in the Planetary Science Journal.
- Useful because...

Undergraduate Laboratory Worker
University of Arizona, Arizona Noble Gas Laboratory

- Prepared whole rock samples by crushing, sieving, and acid treating.
- Used various methods such as microscopy to produce pure mineral separates from
- these samples.
- Packaged separates to be sent off for irradiation.
- Loaded irradiated samples for isotopic analysis.
- Useful because...

Undergraduate Research Assistant
University of Arizona, Lunar & Planetary Laboratory

- Participated in the development of a software package (SBDynT) that will use machine learning to classify dynamical properties of small bodies expected to be discovered by the Legacy Survey of Space and Time (LSST).
- Characterized the orbital dynamics of a population of small bodies (centaurs) orbiting between Jupiter and Neptune.
- Ran orbital simulations to determine which objects are in orbital resonance with the giant planets, and the stability timescale of these resonant configurations.

Awards

Excellence in Undergraduate Research Award

University of Arizona
Department of Planetary Sciences

Arizona NASA Space Grant Award

expand

Projects

Home Server
Self-hosted home server running docker on Linux, provides various services such as:
personal cloud storage, VPN, media server, home assistant, device control, etc. 2025
Rebound coding projects
Various python and C projects building off of my 2024 publication.

Skills

Programming: Python (NumPy, PANDAS, Matplotlib, SciPy, Rebound), C, C++
Linux Command Line
Laboratory procedure and safety
Operation of heavy machinery
Data analysis
Scholarly research
Academic writing
Optical microscopy
Small telescope operation
Photography
Small Drone operation
PC Building
Single-board computers