

Spencer Wallace

☎ 520 461 4480 | ✉ spencerw530@gmail.com | [LinkedIn](#) | [GitHub](#) | [Website](#) | 📍 San Diego, CA

EDUCATION

University of Washington

PhD Astronomy

Thesis: Planetesimal Accretion in the Solar System and Beyond

Seattle, Washington

Oct 2015 – August 2023

University of Arizona

BS Computer Science, Astronomy and Physics

Thesis: Turbulent Entrainment in 1D Stellar Evolution Models

Tucson, Arizona

Aug 2009 – May 2014

WORK EXPERIENCE

Simulating the assembly of terrestrial planets

University of Washington, Astronomy Department

Jan 2018 – August 2023

- Designed, proposed and executed a \$450,000 research grant project to model the planet formation process (Python, Numpy, Pandas, Git)
- Tested, debugged and ran highly parallel simulations across multiple compute nodes on a variety of national supercomputers (C++, Git, Bash)
- Extended a large-scale hydrodynamics code to model collisions between solid bodies (C++, Git)
- Led weekly meetings to train and mentor undergraduate researchers to use python data analysis tools, develop modules for our N-body code, and run simulations

Data synthesis from N-body simulations

University of Washington, eScience Institute

Jan 2023 – August 2023

- Developed a pipeline to construct initial conditions for planet formation models by training a generative adversarial network (GAN) on existing results (Python, PyTorch, Pandas, Numpy, Git)
- Saved over 900,000 CPU hours of computation by using the GAN to skip the first phase of our simulations

Detecting stellar flares with the Transiting Exoplanet Survey Satellite

University of Washington, DIRAC Institute

Jun 2019 – Jun 2020

- Built a time-series analysis pipeline to find over 7,000 new flare stars in NASA space telescope data (Python, Numpy, Pandas, Git)
- Obtained new rotation period measurements for over 80,000 stars using a gaussian process model

Exploring parallel algorithms for spatial tree traversal

University of Illinois Urbana-Champaign, Computer Science Department

Jun 2019 – Apr 2021

- Participated in a interdisciplinary collaboration to develop [PARATREET](#), a toolkit for quickly testing and tuning parallel spatial tree traversal algorithms (C++, Python, Bash, Git)
- Worked with a team of computer scientists to apply and test their algorithms on a number of real-world astronomy applications and reduce force calculation times for our simulations by a factor of 30

Graduate teaching assistant

University of Washington, Astronomy Department

Oct 2015 – Jun 2020

- Led weekly discussion sections, graded assignments, preformed lectures and designed homework exercises for undergraduate students
- Collaborated with a team of other teaching assistants to ensure assignments, quizzes and exams were graded consistently and fairly

SKILLS

Programming: C++, Python, NumPy, Pandas, PyTorch, scikit-learn, matplotlib, Seaborn, SQL

Communication: 3 first-authored publications, 3 co-authored publications, 7 conference talks, 3 conference posters, 20 pop-sci articles published through [astrobites](#)

Leadership: Worked on 4 separate science collaboration teams, Mentored and directed research for 6 undergraduate students