

Austen Gabrielpillai

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Professional Appointments

NASA Goddard Space Flight Center / Catholic University of America

Goddard, MD

RESEARCH ASSISTANT

Nov. 2020 - Present

- Under the supervision of James Rhoads and Sangeeta Malhotra, funded by the CRESST II cooperative agreement.
- Developing instrument simulation and data processing pipelines in Python and Jupyter Notebooks for Roman Space Telescope preparation.
- Optimizing and parallelizing code using multiprocessing and numba for running simulations on high-performance computing clusters.
- Investigating the time evolution of physical properties and their residuals between bijectively matched galaxies in two catalogs.

Center for Computational Astrophysics / Flatiron Institute

New York, NY

RESEARCH ANALYST

Jul. 2018 - Aug. 2020

- Part- / full-time internship under the supervision of Rachel Somerville as a member of the Galaxy Formation group.
- Conducted galaxy formation research comparing Santa Cruz SAM and IllustrisTNG simulation outputs at $z=0$.
- Developed a Python module for querying and loading partitions of a 180 GB simulation suite.
- Created a browser tool that enables real-time transformations of over 4 million simulated galaxies using Three.js and D3.js graphics.

GSI Helmholtz Center for Heavy Ion Research

Darmstadt, DE

UNDERGRADUATE RESEARCH ASSISTANT

May 2016 - Aug. 2016

- Full-time internship under the supervision of Zoran Andelkovic and Wilfried Nörtershäuser as a member of the Atomic Physics group.
- Directed high-energy ion beams along 100 meters of beam line as part of a facility wide development project.

Education

Rutgers University - New Brunswick

New Brunswick, NJ

MASTER OF INFORMATION

Sep. 2018 - May 2020

- Concentration in Data Science

University of Illinois at Urbana-Champaign

Urbana, IL

B.S. IN ENGINEERING PHYSICS

Aug. 2013 - May 2017

- Concentration in Computer Science

Skills

Programming Python (fluent), JavaScript (proficient), HTML & CSS (proficient), C (familiar), C++ (familiar), SQL (familiar)

Software Jupyter Notebook, PyCharm, Microsoft Visual Studio, Adobe Photoshop, Github, Overleaf

Linux Computing System Commands, Vim, Bash, Slurm, MPI

Publications

FIRST AUTHOR

2021, *Galaxy Formation in the Santa Cruz semi-analytic model compared with IllustrisTNG – I.*

Galaxy scaling relations, dispersions, and residuals at $z=0$

In Review

GABRIELPILLAI, AUSTEN; SOMERVILLE, RACHEL S.; GENEL, SHY; RODRIGUEZ-GOMEZ, VICENTE; PANDYA, VIRAJ;

YUNG, L. Y. AARON; HERNQUIST, LARS

arXiv:2111.03077

CO-AUTHOR

2021, *Galaxy assembly bias and large-scale distribution: a comparison between IllustrisTNG and a semi-analytic model*

MNRAS, 508, 698

HADZHIYSKA, BORYANA; LIU, SONYA; SOMERVILLE, RACHEL S.; **GABRIELPILLAI, AUSTEN**; BOSE, SOWNAK;

EISENSTEIN, DANIEL; HERNQUIST, LARS

arXiv:2108.00006