

# Alan Pearl

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## Personal Statement

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Postdoctoral researcher in Astrophysics, seeking to bring my wide skillset to a career in data science. I have over 8 years of experience in open-source scientific software development, algorithm derivation and implementation, big data analysis, relational database queries, Bayesian inference, and machine learning. I am the lead developer of several open-source software projects: 🌐 multigrad, 🌐 multiswarm, 🌐 kdescent, 🌐 galtab, 🌐 JaxTabCorr, and 🌐 mocksurvey. I look forward to undertaking new challenges in the field of data science.

As an American, English is my native language. However, I have also attained a proficient level in French thanks to my dedication of practicing every day for the past several years. Now I would like to make the most of this by exploring life in France, while continuing to improve my French and gaining new career skills.

## Experience

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### Postdoctoral Appointee

Sep 2023 - Present

*Argonne National Laboratory, Lemont, IL*

- Collaborated on various Jax-based libraries in the 🌐 dsps ecosystem. Led the effort to parallelize parameter optimization and utilize exascale high-performance computing resources through the development of 🌐 multigrad, 🌐 multiswarm, and 🌐 kdescent.

### Graduate Student Researcher / Teaching Assistant

Sep 2017 - Aug 2023

*University of Pittsburgh, Pittsburgh, PA*

- Developed new statistical tools and constructed state-of-the-art mock galaxy data catalogs with various machine learning techniques, such as random forest regression. Enabled by both community-driven and personal open-source projects such as: 🌐 galtab, 🌐 JaxTabCorr, 🌐 mocksurvey, and 🌐 halotools.

## Education

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**University of Pittsburgh** – Pittsburgh, PA

2017 - 2023

*Ph.D. Physics – Thesis: Illuminating and Tabulating the Galaxy-Halo Connection*

Spring 2023

*M.S. Physics, GPA: 3.89*

Dec 2018

**Rensselaer Polytechnic Institute** – Troy, NY

2013 - 2017

*B.S. Physics, magna cum laude, GPA: 3.75*

May 2017

## Technical Skills

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<b>Primary Language:</b>	Python ( <i>over 8 years of scientific software development</i> )
<b>Python Packages:</b>	NumPy, Jax, Pandas, mpi4py, Scikit-Learn, TensorFlow, SpaCy, LangChain
<b>Secondary Languages:</b>	C++, C#, Cython, MATLAB, HTML, SQL, Mathematica, IDL
<b>Operating Systems:</b>	Linux (Ubuntu), Windows (with WSL)
<b>Other tools:</b>	Slurm, Docker, Git, DVC, GitHub CI, VS Code, debuggers (gdb, pdb)
<b>Communication skills:</b>	Advised projects, published papers, presented talks, taught classes, tutored students

## First-Author and Advisee Publications

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<b>Mar 2024</b>	<b>Pearl, Alan N.</b> ; Zentner, Andrew R.; Newman, Jeffrey A.; et al. 2024, ApJ, 963, 116
<b>Jan 2024</b>	Steel, Cecilia; <b>Pearl, Alan N.</b> ; Kaushal, Yasha; Bezanson, Rachel 2024, RNAAS, 8, 16
<b>Feb 2022</b>	<b>Pearl, Alan N.</b> ; Bezanson, Rachel; Zentner, Andrew R.; et al. 2022, ApJ, 925, 180P
<b>Oct 2017</b>	<b>Pearl, Alan N.</b> ; Newberg, Heidi Jo; Carlin, Jeffrey L.; Smith, R. Fiona 2017, ApJ 847, 123P