

Nicole Brewer

RESEARCH SOFTWARE ENGINEER

Purdue University, West Lafayette, IN

🏠 nicole-brewer.com | 📧 nicole-brewer | 📄 nicole-brewer | 🐦 catch_me_coding

Education

Purdue University

MATHEMATICS WITH COMPUTER SCIENCE

- Purdue's All-Women Student Cluster Competition Team
- Vice President of Purdue Triathlon Club

West Lafayette, IN

December 2018

Experience

ITaP Research Computing

RESEARCH SOFTWARE ENGINEER

- Implemented a highly interactive, Jupyter-based, GUI wrapper for power analysis software in order to expand the audience and ease of use of a rich set of computational functions via a user-friendly interface
- Facilitated software design, the implementation of best practices, and internal tool development, and lab documentation to improve the overall sustainability of lab software
- Transform disparate data acquisition and processing scripts into modular classes to be reused for scientific workflows
- Designed a dynamic Solr schema to index and query layered geospatial and user-defined metadata
- Implemented interactions with this database in a web application in PHP and JavaScript
- Mentored students participating in internships, Science Gateways Student Hackathon 2019, and Purdue's Student Cluster Competition team

Purdue University

Feb 2019 - Present

Aptiv

SOFTWARE VERIFICATION ENGINEER

- Developed comprehensive Unit Test projects that utilized CAN bus protocol communications to verify automotive controller hardware

West Lafayette, IN

Nov 2017 - Nov 2018

Publications

1. Brewer, N., Kim, H., Li, C., Anderson, H., Lanum, J., Cheoh, J., Hillery, B., & Overmyer, T. (2019). Student cluster competition 2018, team ada six of purdue university: Reproducing extreme scale multi-physics simulations of tsunamigenic 2004 sumatra megathrust earthquake on intel skylake architecture. *Parallel Computing*, 90, 102565. <https://doi.org/10.1016/j.parco.2019.102565>

Honors and Awards

Young Professional of the Year

HONORARIUM AWARDED FOR NOTABLE ACHIEVEMENT IN THE ADVANCEMENT OF SCIENCE GATEWAYS

Virtual

Gateways 2020

XSEDE Student Travel Grant

TRAVEL SUPPORT TO ATTEND PEARC18 AND ATTEND THE STUDENT PROGRAM

XSEDE

PEARC2018

Phil Andrews Award

AWARDED FOR POSTER PRESENTATION OF "CLASSIFICATION OF PERIODICITY IN SUBTRACTION GAME SEQUENCES"

Pittsburgh, PA

PEARC2018

Talks and Presentations

Oct 2021 **To Be Decided** (Invited Panelist), International RSE Day, Virtual.

<https://us-rse.org/events/2021/2021-10-intnl-rse-day>

Research Experience

CSol Channels Scholar REU

CENTER FOR SCIENCE OF INFORMATION, NSF STC

2018

- Utilized HPC clusters to efficiently create large data sets pertaining to combinatorial game theory
- Analyzed batching strategies of parallel computation to efficiently detect an unknown length of repeating sequences in long strings
- Developed a command line interface and file management system in Python to prevent human error and enhance the usability of codebase upon inheritance
- Created a data visualization to illuminate patterns and relationships among 5-dimensions for future work

Teaching Experience

Object Oriented Programming

UNDERGRADUATE TEACHING ASSISTANT

Purdue University

Aug 2015 - May 2016

Service

ITaP Research Computing

CO-CHAIR OF WOMEN IN HIGH PERFORMANCE COMPUTING

Purdue University

June 2020 - Present

- Started a podcast to continue to improve visibility of women in spite of discontinuing in-person events in the wake of the COVID-19 pandemic

Mentors for Aspiring Girls in Computing

NEAR-PEER MENTOR

Purdue University

Aug 2018 - Dec 2018

- Led hands-on activities to teach computer science concepts to local middle and high school students in order to improve the recruitment and retention of young women in technology careers

Training

San Diego Supercomputer Center

SDSC SUMMER INSTITUTE

Virtual

May 2020

- Machine learning in R, big data with Spark, parallel programming with Python, and scientific visualization

Krannert Executive Education

APPLIED MANAGEMENT PRINCIPLES

West Lafayette, IN

July 2019

- Purdue's "mini-MBA" covering accounting, finance, strategy, marketing, negotiations & problem solving