Katy Williams

PhD Student in Computer Science, University of Arizona
kawilliams@cs.arizona.edu
http://hdc.cs.arizona.edu/people/kawilliams/

EDUCATION

University of Arizona **Tucson, AZ**
PhD student in Computer Science (resuming August 2021) *August 2017 - May 2020*

- GPA: 3.44/4.0
- Research interest: Visualization of performance data from high-performance computers
- Relevant courses: Advanced Data Visualization, Design and Analysis of Algorithms, Advanced Operating Systems, Parallel and Distributed Computing, Computer Security

Master's Degree in Computer Science *Received in December 2019*

Davidson College **Davidson, NC**
Bachelor of Science in Computer Science, Minor in Mathematics *May 2017*

- GPA: 3.24/4.0
- Relevant courses: Data Visualization, Machine Learning, Numerical Analysis, Analysis of Algorithms, Concurrent and Parallel Computing, Computer Organization, Artificial Intelligence

PUBLICATIONS

1. A. Bigelow, K. Williams, and K. E. Isaacs. Guidelines for Pursuing and Revealing Latent Data Abstractions. IEEE TVCG, to appear (Proceedings of IEEE VIS 2020).
2. S. Brink, I. Lumsden, C. Scully-Allison, K. Williams, O. Pearce, T. Gamblin, M. Taufer, K. Isaacs, and A. Bhatele. Usability and Performance Improvements in Hatchet. Presented at the ProTools 2020 Workshop, held in conjunction with the International Conference for High Performance Computing, Networking, Storage and Analysis (SC '20), held virtually.
3. S. Brandt, A. Bigelow, S. Sakin, K. Williams, K. E. Isaacs, K. Huck, R. Tohid, B. Wagle, S. Shirzad and H. Kaiser. 2020. JetLag: An Interactive, Asynchronous Array Computing Environment. To appear in Proceedings of the Practice and Experience on Advanced Research Computing (PEARC '20). Association for Computing Machinery, New York, NY, USA.
4. K. Williams, A. Bigelow, and K. E. Isaacs. Visualizing a moving target: A design study on task parallel programs in the presence of evolving data and concerns. To appear in IEEE Transactions on Visualization and Computer Graphics (Proceedings of InfoVis '19), Jan. 2020. Presented at IEEE VIS in October, 2019.
5. R. Tohid, B. Wagle, S. Shirzad, P. Diehl, A. Serio, A. Kheirkhahan, P. Amini, K. Williams, K. Isaacs, K. Huck, S. Brandt, H. Kaiser. Asynchronous Execution of Python Code on Task Based Runtime Systems. In IEEE/ACM 4th International Workshop on Extreme Scale Programming Models and Middleware (ESPM2'18), SC '18, November 2018.

PRESENTATIONS AND POSTERS

1. K. Williams. Visualizing Call Trees in Jupyter Notebooks with Hatchet. At 2020 LLNL Summer SLAM!, August 2020.
2. K. Williams. Visualizing Large-Scale Distributed Computing Expression Evaluation. At 2018 CRA-W Grad Cohort for Women, April 2018.

SCHOLARSHIPS AND AWARDS

- **Galileo Circle Scholar**: one of three Department of Computer Science graduate students selected as a Galileo Scholarship recipient for 2020

RELEVANT WORK & RESEARCH EXPERIENCE

Lawrence Livermore National Lab **Livermore, CA**
(remote)

Computing Scholar Intern *June – August 2020*

- Built the custom, interactive, call tree visualization Roundtrip to be used in Jupyter notebooks with the Python library Hatchet to aid performance analysis of scientific simulations
- Worked remotely with the Hatchet team to develop the user workflow for program performance analysis in Jupyter notebook

TRAVELER **Tucson, AZ**

Research Assistant *January 2018 – January 2020*

- Graduate visualization researcher for TRAVELER team (Task Runtime Analysis and Visualization for Execution Log Exploration and Research) as part of Phylanx project in collaboration with Louisiana State University and University of Oregon
- Created usable, interactive tree diagrams for the Phylanx development team to analyze and compare the performance of their library

SwimNerd **Virginia Beach, VA**

Intern: Web Developer *May – August 2019*

- Developed swimnerd.com, a recruiting database for prospective collegiate swimmers to see how their best times compare at a division, conference, and team level
- Refined both the frontend and backend interfaces with HTML, PHP, and MySQL code for a better user experience

Project PRONTO **Davidson, NC**

Member of Student Web Application Developer Team *May 2016 – Aug 2016*

- Selected as a member of Project PRONTO (Productive Online Tools), a team of student programmers that build web applications to help streamline processes at Davidson College and in the community
- Collaborated with a team of three to learn web application development using Flask and how to integrate new and existing tools to the school SQL database

Student Web Application Developer *June 2015 – August 2015*

- Learned how to develop web-based tools and grew programming abilities under the guidance of Dr. Heyer with the result of engineering several tools for campus and community partners, such as the Charlotte Community ToolBank

LEADERSHIP & SERVICE

Secretary and Social Chair on the Computer Science Graduate Student Council — University of Arizona
October 2018 – May 2020

Student Volunteer at IEEE Vis 2019 — Vancouver, Canada
October 20-25, 2019

Student Volunteer at IEEE Vis 2018 — Berlin, Germany
October 21-26, 2018

Student Volunteer at SC18 — Denver, CO
November 11-26, 2018

Captain and member of Davidson College Swimming and Diving Team — Davidson, NC
August 2013 – February 2017

Co-President of FICSIT (Females in Computer Science and Information Technology) — Davidson, NC
January 2016 – May 2017

SKILLS

- Programming languages: Python, Java, C++, JavaScript, d3, HTML, CSS, Flask, PHP, SQL, MySQL, SQLAlchemy
- Applications: Jupyter Notebook, Docker, MatLab,
- Github: kawilliams