

Robert Searles

Education

- 2012–2018 **Ph.D. Computer and Information Science, *University of Delaware, Newark, DE.***
(est) Research topics include high-level languages targeting accelerators, auto-tuning of compiler optimizations, machine learning, and distributed graph analysis on large sets of data.
- 2016 **M.S. Computer Science, *University of Delaware, Newark, DE.***
- 2008–2012 **B.S. Computer Science, *University of Delaware, Newark, DE.***

Experience

- 2015 **Co-Op Engineer, *Advanced Micro Device (AMD), Sunnyvale, CA.***
Member of the external research area at the Sunnyvale facility. Implemented a template library providing high-level programming abstraction for an emerging processing-in-memory architecture.
- 2011–Present **Research Assistant, *University of Delaware, Newark, DE.***
Position under Dr. John Cavazos. Conducted research on multiple topics, including:
- Auto-tuning high level languages targeted at GPU codes (including financial applications ported to the GPU)
 - Optimizing GPU performance using OpenACC
 - Leveraging heterogeneous systems to perform program characterization by analyzing graph-based representations of applications
 - Large-scale graph analysis on distributed systems
- 2010, **Teaching Assistant, *University of Delaware, Newark, DE.***
- 2015-2017 Monitor lab sessions and proctor exams. Fill in for lectures when needed. Responsible for grading labs and exams and holding office hours for students who need extra help.
- Fall 2010: CISC 106 – Introductory Computer Science for Engineers (J. Cavazos)
 - Fall 2015: CISC 471/672 – Compiler Design (L. Pollock)
 - Spring 2016: CISC 275 – Introduction to Software Engineering (T. Harvey)
 - Fall 2016: CISC 471/672 – Compiler Design (L. Pollock)
 - Spring 2017: CISC 275 – Introduction to Software Engineering (T. Harvey)

Open-Source GPU Projects

PolyBench/ACC

cavazos-lab.github.io/PolyBench-ACC

Scientific kernels targeting accelerators

FinanceBench

cavazos-lab.github.io/FinanceBench

Financial benchmarks targeting accelerators

Publications

- [1] [CONFERENCE] [R. Searles](#), L. Xu, W. Killian, T. Vanderbruggen, T. Forren, J. Howe, Z. Pearson, C. Shannon, J. Simmons, and J. Cavazos, “Parallelization of Machine Learning Applied to Call Graphs of Binaries for Malware Detection,” at *25th Euromicro International Conference on Parallel, Distributed and Network-Based Processing*, PDP 2017, St. Petersburg, Russia, 2017.
- [2] [WORKSHOP] [R. Searles](#), S. Herbein, and S. Chandrasekaran, “A Portable, High-Level Graph Analytics Framework Targeting Distributed, Heterogeneous Systems,” at *WACCPD16: Third Workshop on Accelerator Programming Using Directives (WACCPD '16)*. IEEE Press, Piscataway, NJ, USA, 79-88.
- [3] [WORKSHOP] S. Grauer-Gray, W. Killian, [R. Searles](#), and J. Cavazos, “Accelerating Financial Applications on the GPU,” in *Proceedings of the 6th Workshop on General Purpose Processor Using Graphics Processing Units*, GPGPU-6, (New York, NY, USA), pp. 127–136, ACM, 2013.
- [4] [CONFERENCE] S. Grauer-Gray, [R. Searles](#), L. Xu, S. Ayalasomayajula, and J. Cavazos, “Auto-tuning a High-Level Language Targeted to GPU Codes,” at *INPAR: Innovative Parallel Computing*, INPAR 2014, San Jose, CA, USA, 2012.

Professional Services

- 2017 Mentor, *GPU Hackathon 2017 - Brookhaven National Laboratory*, Upton, NY.
- 2016 Mentor, *3-Day OpenACC GPU Hands-on Programming Workshop at University of Delaware*, Newark, DE.
- 2016 GPU Hackathon Participant, *5-Day GPU Programming Hackathon at University of Delaware*, Newark, DE.

Volunteerism

- 2016 Student Volunteer, *SuperComputing 2016*, Salt Lake City, UT.
- 2015 Student Volunteer, *SuperComputing 2015*, Austin, TX.
- 2014 Student Volunteer, *SuperComputing 2014*, New Orleans, LA.
- 2009–2012 Vice-President, *Association of Computing Machinery @ UD*, Newark, DE.
- 2009–2012 Webmaster, *Linux Users Group @ UD*, Newark, DE.