

DEREK ONKEN

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RESEARCH EXPERIENCE

Scalable Publish-Subscribe System, supervised by Dr. Ymir Vigfusson August 2016—present
Emory University, Department of Mathematics and Computer Science

- Developing the design for a pub-sub system scalable to 1 trillion topics
- Using Facebook as a use-case and building off of their RocketSpeed design

Lunar Study, supervised by Dr. Juan B. Gutierrez August 2014—present
University of Georgia, Department of Mathematics

- Parsed 20 years of CDC Vital Statistics natality and mortality data using C++ code, which also calculated fields based on moon phase
- Uploaded the parsed data into SQL database
- Analyzed the data using MATLAB
- Paper in progress

Parallelization Comparison, supervised by Dr. Juan B. Gutierrez May 2014—August 2014
University of Georgia, Department of Mathematics

- Researched the parallelization methods of MPI, OpenCL, and CUDA
- Wrote programs and shell commands to compare performances of parallelization methods of a simple PDE on a cluster and on a personal computer
- Converted MATLAB Gene Set Enrichment Analysis code (runtime: longer than a week) to faster C++ code implementing MPI (runtime: 15 seconds) [studying the spread of malaria inside primate host]
- Wrote MPI tutorial for future implementers

COMPUTATIONAL SKILLS

- Comfortable in C, C++, MATLAB, SQL (MySQL database), Java
- Familiar with Python, x86, Mathematica, Unix, MPI, OpenCL, CUDA, HTML, Version Control (winCVS, GitHub, Bitbucket)

EDUCATION

Emory University Begun August 2016

- *Computer Science PhD candidate*
- *Coursework:*
 - CS534 Machine Learning Fall 2016
 - CS584 Computer Security Fall 2016
 - MATH515 Numerical Analysis Fall 2016

The University of Georgia, Honors College December 2015

- *Majors:* Bachelor of Science in Mathematics and Computer Science
- *Minors:* Physics and Classical Culture
- *Honors:* Graduated High Honors with Capstone
- *Graduate coursework:*
 - MATH8500 Splines Fall 2015
 - MATH8150 Complex Analysis Spring 2015
 - PHYS6300 Thermodynamics and Kinetic Theory Spring 2015
 - CSCI6050 Software Engineering Fall 2014
 - CSCI6470 Algorithms Fall 2014
 - CSCI6610 Automata Spring 2014

LEADERSHIP & COMMUNITY SERVICE EXPERIENCE

University of Georgia Men's Swimming & Diving Team, Captain & Division I Varsity Athlete Aug 2011—2015

- Hosted and advised prospective student-athlete recruits
- Competed at the SEC championships
- Qualified for the 2016 U.S. Olympic Trials
- NCAA Academic All-American Honorable Mention—2013, 2014, 2015
- Awarded "Scholar-Athlete" Award for entire Athletic Department —2015
- Awarded Ramsey Scholarship for Academic and Athletic Excellence — 2014—2015
- Awarded "Hardest Worker" Swimming Award— 2014, 2015
- Awarded "Scholar-Athlete" Swimming Award —2014

Student-Athlete Advisory Committee, Team Representative Aug 2014—2015

- Served as interface between student-athletes and administrative officials
- Organized and participated in Community Service programs (Hunger Bowl, Hometown Heroes, etc.)

WORK EXPERIENCE

Tutor (UGA Athletic Department) Jan 2016—May 2016

- Instructed Multivariable Calculus, Differential Equations, Discrete Math, and Systems Programming
- Worked 12 hours per week

Pre-Calculus Tutor Aug 2015—May 2016

- Instructed a high school senior weekly

Piano Teacher Aug 2013—Mar 2014

- Instructed an 8-year old and 10-year old weekly

Summer League Swimming Coach Apr—Jun 2009, Apr—Jun 2010

- Taught and coached children between ages 5 and 18

HONORS & AWARDS

- Athletic Director's Honor Roll
- SEC Academic Honor Roll
- Dean's List
- Presidential Scholar
- Phi Beta Kappa