Erin Carrier

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EDUCATION

University of Illinois Urbana-Champaign — Expected Completion: February 2019

- PhD: Computer Science
- Research Area: Scientific Computing
- GPA: 4.0/4.0

Grand Valley State University, Allendale, MI — Graduated: April 2013

- Bachelor of Science: Computer Science
- Minor: Mathematics
- GPA: 3.989/4.0

SKILLS

Programming Languages

- Python
- Java
- C / C++

Libraries and Parallel Programming Paradigms

- NumPy
- SciPy
- Matplotlib
- MPI
- OpenMP
- CUDA
- Charm++

Software and Tools

- Git
- LaTeX

RELEVANT COURSEWORK

Numerics

- Numerical Analysis
- Parallel Numerical Algorithms
- Fast Algorithms and Integral Equations
- Numerical Methods for PDEs
- Iterative and Multigrid Methods

Computer Science

- High-Performance Computing
- Scientific Visualization
- Graphical Models
- Parallel Programming with Migratable Objects
- Designing and Building Applications for Extreme Scale Systems
- Machine Learning
- Applied Machine Learning

RESEARCH & PROFESSIONAL EXPERIENCE

PhD Student, University of Illinois — Aug 2013 – Present

- Thesis Title: A Sampling-based Method for Solving Linear Systems
- Advisor: Michael Heath
- Investigating a sampling-based method for solving linear system
- Examining performance for variety of 1D and 2D test problems
- Exploring how choice of sampling basis and choice of discretization affect performance
- Research assistant (summer 2018, summer 2017, summer 2015)

Graduate Intern, Risk and Reliability Analysis, Sandia National Labs — May 2016 – Aug 2016

- Improved HyRAM, a toolkit for hydrogen risk assessment
- Profiled code and decreased code runtime
- Performed code verification and identified and fixed bugs
- Documented numerical methods used by HyRAM

Graduate Research Assistant, Los Alamos National Laboratory — May 2014 – Aug 2014
- Participant in LANL Co-Design Summer School
- Worked as part of a six student, interdisciplinary team
- Implemented tile-based adaptive mesh refinement
- Compared various runtime systems

Research Project (Group), Grand Valley State University — May 2012 – May 2013
- Topic: PyGASP: Python-based GPU-accelerated signal processing
- Advisor: Dr. Greg Wolffe
- Worked in the Distributed Execution Network Lab (DEN)
- Developed a signal-processing toolkit accelerated using PyCUDA
- Investigated possible scientific applications

Payables Clerk, Physical Therapy Services of West Michigan — Jan 2010 – Dec 2013
- Managed accounts payables
- Handled recording of bank deposits
- Part time position

IT Intern, Jackson National Life Insurance Company — May 2011 – Aug 2011
- Designed additions to current website and database
- Documented thoroughly the designed additions
- Implemented the new functionality

TEACHING EXPERIENCE----------

Lead Teaching Assistant (Numerical Methods), University of Illinois — Aug 2018 – Present
- Lead TA for course with approximately 450 total students
- Oversee team of 10-15 teaching and course assistants
- Organize duties and schedule and oversee completion of work

Lead Teaching Assistant (Numerical Methods), University of Illinois — Aug 2017 – May 2018
- Lead TA for class with approximately 400 total students
- Interfaced with students regarding issues
- Oversaw team of 8-10 teaching and course assistants
- Organized task schedule and oversaw deadlines

Teaching Assistant (Numerical Analysis), University of Illinois — Aug 2016 – May 2017
- Held office hours
- Interfaced with students regarding issues
- Coordinated exams with CBTF and prepared exams and quizzes

Teaching Assistant (Numerical Methods), University of Illinois — Aug 2015 – May 2016
- Interfaced with students regarding issues
- Held office hours
- Created assignments and exams

Teaching Assistant (Numerical Analysis), University of Illinois — Aug 2014 – May 2015
- Held office hours
- Created homework assignments

Teaching Assistant (Numerical Methods), University of Illinois — Aug 2013 – May 2014
- Held office hours
- Created exams and homework assignments

PUBLICATIONS----------

Erin Carrier and Michael T. Heath. A Sampling-based Method for Solving Linear Systems. Submitted to SIAM J. Sci. Comput. — In submission

KM Groth, ES Hecht, JT Reynolds, ML Blaylock, **EE Carrier**. Methodology for assessing the safety of Hydrogen Systems: — March 2017

HyRAM 1.1 Technical Reference Manual. Sandia Technical Report SAND2017-2998. March 2017

N. Bowman, **E. Carrier** and G. Wolffe, "PyGASP: Python-based GPU-accelerated signal processing," *IEEE International Conference on Electro-Information Technology , EIT 2013*, Rapid City, SD, 2013, pp. 1-6. May 2013

HONORS AND AWARDS

CS @ Illinois Grace Hopper Travel Grant — Fall 2018
Outstanding Teaching Assistant — Fall 2015
Outstanding Senior in Computer Science — Spring 2012
Outstanding Undergraduate in Computer Science — Spring 2012
Member of Upsilon Pi Epsilon Honor Society — Inducted: Fall 2011
Member of Phi Kappa Phi Honor Society — Inducted: Spring 2011

ACTIVITIES

Member of Graduate Study Committee — Fall 2015 – Spring 2016
Grand Valley State University ICPC Programming Team — Fall 2010 – Fall 2012
Study Abroad in Paros, Greece — Summer 2010