Christopher Gropp
Curriculum Vitae

PERSONAL DETAILS

Birth	May 10, 1991
Address	811 Issaqueena Trail #1306, Central, SC 29630
Phone	(217) 722-2657
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EDUCATION

BS in Computer Science, Mathematics, and Computational Science   2013
Rose-Hulman Institute of Technology
Notable classes include:

- Theory of Computation

- Functions of a Real Variable

- Deterministic Models for Operations Research

- Hidden Markov Models

- Swarm Intelligence

MS in Computer Science   2016
Clemson University

PhD in Computer Science   Anticipated 2019
Clemson University
Notable classes include:

- Design and Analysis of Algorithms

- Fundamentals of Biometric Systems

- Translation of Programming Languages

- Software Architecture

PUBLICATIONS

Build To Order Linear Algebra Kernels   2012
Christopher Gropp (presenter), Geoffrey Belter, Elizabeth Jessup, Thomas Nelson, Boyana Norris, Jeremy Siek. Poster presented at Supercomputing, 2012 Nov 10-16; Salt Lake City, UT.

Competitively Reviewed Poster Session

Explained design and function of code generation software developed by University of Colorado at Boulder, as well as results of testing I performed while working there.

Analyzing Clustered Latent Dirichlet Allocation   2016

Christopher Gropp. Masters Thesis, Clemson University; Clemson, SC.

> Develops the groundwork for an alternative approach to dynamic topic modeling utilizing existing parallel code, and performs preliminary analysis of the effectiveness of the approach.

Scalable Dynamic Topic Modeling with Clustered Latent Dirichlet Allocation (CLDA)   2017

Christopher Gropp, Alexander Herzog, Ilya Safro, Paul W. Wilson, Amy W. Apon. arXiv:1610.07703 [cs.IR]

> Presents a scalable topic model for analyzing text corpora over long time scales, as well as developing and applying the metrics necessary to evaluate the quality of its results.

Automated Cluster Provisioning And Workflow Management for Parallel Scientific Applications in the Cloud   2017

Brandon Posey, Christopher Gropp, Alexander Herzog, Amy W. Apon. Presented at Supercomputing 2017.

> Develops a system for provisioning cloud workflows, and applies this to scale a topic modeling application up to over 28,000 vCPUs in minutes.

Representativeness of Latent Dirichlet Allocation Topics Estimated from Data Samples with Application to Common Crawl   2017

Yuheng Du, Alexander Herzog, Andre Luckow, Ramu Nerella, Christopher Gropp and Amy W. Apon. Presented at IEEE BigData 2017.

> Uses several types of similarity measures to evaluate the usefulness of the CommonCrawl web sample as compared to true random sampling in the context of inferring topic models.

Addressing the Challenges of Executing a Massive Computational Cluster in the Cloud   2018

Brandon Posey, Christopher Gropp, Boyd Wilson, Boyd McGeachie, Sanjay Padhi, Alexander Herzog, Amy Apon. To appear at CCGrid 2018.

> Discusses the challenges and solutions involved in scaling up a topic modeling workflow to over 1.1 million vCPUs on the Amazon cloud.

RESEARCH EXPERIENCE

Internship at Oak Ridge National Laboratory   2010

Research Advisor: Dr. Rebecca Hartman-Baker

> Designed and ran experiments on Jaguar, at the time the fastest supercomputer in the world
> Attended seminars and learned a number of techniques for parallel computing
> Located performance bottlenecks in leadership-level nuclear physics code using VampirTrace

Internship at University of Illinois at Urbana-Champaign   2011

Research Advisor: Dr. Albert Valocchi, Civil and Environmental Engineering

> Consulted for development of PFLOTRAN, a leadership level program for groundwater modeling
> Gained experience interfacing with domain specialists

Internship at University of Colorado at Boulder   2012
Research Advisor: Dr. Elizabeth Jessup, Computer Science

Worked with BTO-BLAS (Built-to-order Basic Linear Algebra Subprograms), a code generation tool

Designed, implemented, and ran performance evaluations comparing scalability to other BLAS libraries

Presented findings at Supercomputing 2012

Misc. Projects at Clemson University   2014-present
Research Advisor: Dr. Amy Apon, Computer Science

Designed and implemented a pipeline for storing and processing social media data

Led a team to develop a game for tracking car movement

Constructed a data and code generator for solving stable matching problem

Developed and analyzed a hybrid system for approximating dynamic topic models

Designed and implemented a framework for pre-processing and unifying text data

Implemented a synthetic data generator for topic modeling

Designed and implemented a scalable experiment pipeline for topic models in the cloud, and scaled this to over 1.1 million vCPUs

SKILLS

Languages   C, C++, C#, FORTRAN, PYTHON, JAVA, MATLAB, LaTeX
Methodology   MPI, Parallel Algorithms, Software Design Patterns, Software Architecture, Linear Algebra, Machine Learning, Topic Models

REFERENCES

Available upon request