

Thomas Randall

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PhD Candidate, Clemson University | Advised by Dr. Rong Ge (rge@clemson.edu)

EDUCATION:

PhD Computer Science August 2019 – May 2025 (Expected Graduation)
Clemson University Clemson, SC

Bachelor of Science in Computer Science May 2019
Minor in Business Administration Major GPA: 3.93/4.00
Clemson University Clemson, SC

DISSERTATION TOPIC: A Systemic Approach to Maximize Heterogeneous System Performance

My dissertation focuses on GPGPU system optimization for energy efficiency and throughput. The work provides insights into novel cooling technologies for accelerated clusters, highly effective knowledge transfer for optimizations and maximally effective uses of GPU technology in software applications.

TOP RESEARCH INTERESTS:

1. High Performance Computing / GPU Computing
2. Performance Autotuning / Parameter Search
3. Computer and System Architecture
4. Systems for Machine Learning: Natural Language Processing, Bayesian Optimization, Large Language Models

RESEARCH PUBLICATIONS:

[In Preparation] Thomas Randall, Guoxi Liu, Federico Iurich and Rong Ge, "Vector-Parallel Tetrahedral Mesh Processing for GPUs"

[In Preparation] Thomas Randall, Arafat Hossain, Akash Dutta, Xingfu Wu, Ali Jannesari and Rong Ge, "Combining Generative Transfer Autotuning with Performance Modeling"

[IGSC'24] Thomas Randall, Bennett Cooper, Naman Kulshreshtha and Rong Ge, "Thermal Behaviors in Liquid Immersion Cooling under Various Workloads: a Case Study", In Proceedings of the 2024 International Green and Sustainable Computing Conference (IGSC '24)

[DoECyberCon'24] Thomas Randall, Rong Ge, Prasanna Balaprakash, "Copy Cat: Limitations of LLMs in Performance Predictions," Poster appearing in Department of Energy Cybersecurity and Technology Innovation 2024 (DoECyberCon '24)

[ICS'23] Thomas Randall, Jaehoon Koo, Brice Videau, Michael Kruse, Xingfu Wu, Paul Hovland, Mary Hall, Rong Ge and Prasanna Balaprakash, "Transfer-Learning-Based Autotuning Using Gaussian Copula", In Proceedings of the 2023 International Conference on Supercomputing (ICS '23)

[Best Paper ICS'21] Thomas Randall, Tyler Allen, and Rong Ge, "FULL-W2V: Fully Exploiting Data Reuse for W2V on GPU-Accelerated Systems", In Proceedings of the 2021 International Conference on Supercomputing (ICS '21)

INVITED TALKS AND FEATURED COVERAGE:

Oak Ridge National Lab Artificial Intelligence Seminar Series Spring 2024
Invited Presenter Oak Ridge, TN

Argonne National Lab Computer Science Seminar Series Summer 2023
Invited Presenter Lemont, IL

I Am HPC Spring 2023
<https://sc23.supercomputing.org/2023/05/hpc-on-the-rise-thomas-randall/> Online

Ask A Grad Fall 2022
SoC-GSA & UPE Clemson, SC

- Invited to discuss undergraduates' interests in pursuing Graduate studies

AWARDS:

Oak Ridge National Laboratory OMNI	Summer 2024
ICS'21 Best Paper	Summer 2021
Argonne National Lab GIVENS Scholar	Summer 2020, Summer 2022
R.C. Edwards Graduate Fellow	Fall 2019 -- Spring 2022
Clemson School of Computing Outstanding Undergraduate Researcher	Spring 2019
Dupont Best Undergraduate Project	Spring 2019

LEADERSHIP AND TEACHING EXPERIENCE:

Lead Student Volunteer, Guided Interest Group Leader SuperComputing'24	Fall 2024 Atlanta, GA
<ul style="list-style-type: none">• Jointly organized Reproducibility efforts with conference committee members• Managed student volunteers to facilitate conference events• Organized and engaged new students at SuperComputing through cohort events and discussions	
Vice President School of Computing Graduate Student Association	Fall 2024 Clemson, SC
<ul style="list-style-type: none">• Organized 2 professional workshops, 3 social events and a fundraiser• Coordinated with University staff to collaboratively enhance events• Managed organization finances and plans	
Lead Student Volunteer, Guided Interest Group Leader, HPC Immersion Mentor SuperComputing'23	Fall 2023 Denver, CO
<ul style="list-style-type: none">• Jointly organized conference Panels and Birds of a Feather with conference committee members• Managed 100+ student volunteers to facilitate conference events• Organized and engaged new students at SuperComputing through cohort events and discussions	
Student Volunteer, Virtual Student Volunteer SuperComputing'20, SuperComputing'21, SuperComputing'22	Fall 2020 (Virtual), Fall 2021, Fall 2022 Online; St. Louis, MO; Dallas, TX
<ul style="list-style-type: none">• Moderate online discussions and forward questions to presenters• Enable communications between conference organizers and presenters	
Graduate Teaching Assistant Clemson University, School of Computing	Fall 2019 — Spring 2023 Clemson, SC
<ul style="list-style-type: none">• Graded 30-100+ students each semester• Prepared assignments, projects and homework for classes• Aided students in office hours with questions about course materials and assignments• Spring 2023: Developed new course for Clemson University with Assistant Professor Dr. Mert Pesé	
Laboratory Teaching Assistant Clemson University, School of Computing	Spring 2017 — Spring 2019 Clemson, SC
<ul style="list-style-type: none">• Prepared and introduced labs and projects for students• Aided students with questions and problems during lab time and office hours• Graded laboratory assignments for up to 30 students	
Summer Staff Coordinator Isaiah 55 Deaf Ministries	Summer 2017 La Feria, TX
<ul style="list-style-type: none">• Coordinated volunteer team responsibilities• Oversaw and participated in construction projects, craft projects, and recreational projects• Maintained and safeguarded facilities and volunteers	