

Thomas Randall, PhD Computer Science

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<https://tlranda.github.io>

EDUCATION:

PhD Computer Science
Clemson University

August 2019 – May 2025
Clemson, SC

Bachelor of Science in Computer Science
Minor in Business Administration
Clemson University

May 2019
Major GPA: 3.93/4.00
Clemson, SC

PhD: A Systemic Approach to Maximize Heterogeneous System Performance

My dissertation is advised by Dr. Rong Ge and focuses on high performance computing optimizations across hardware, software and automatic performance tuning methods, with a special focus in GPGPU workloads. 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. Viewable online at this URL: https://open.clemson.edu/all_dissertations/3935/

TOP RESEARCH INTERESTS:

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

RESEARCH PUBLICATIONS:

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

[In Preparation] Arafat Hossain, Thomas Randall, Akash Dutta, Xingfu Wu, Rong Ge, and Ali Jannesari "Accelerating Transfer-Learning-Based Autotuning with Predictive LLVM IR Performance Ranking"

[IEEE VIS'25] Guoxi Liu, Thomas Randall, Rong Ge and Federico Iuricich, "GALE: Leveraging Heterogeneous Systems for Efficient Unstructured Mesh Data Analysis," In Proceedings of the 2025 IEEE Visualization and Visual Analytics Conference (IEEE VIS 2025)

[IPDPS'25 via HPAI4S Workshop] Thomas Randall, Akhilesh Bondapalli, Prasanna Balaprakash and Rong Ge, "[Is In-Context Learning Feasible for HPC Performance Autotuning?](#)"

[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
Invited Presenter

Spring 2024
Oak Ridge, TN

Argonne National Lab Computer Science Seminar Series
Invited Presenter

Summer 2023
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:

Outstanding PhD Student in Computer Science	Spring 2025
ICS'21 Best Paper	Summer 2021
R.C. Edwards Graduate Fellow	Fall 2019—Spring 2022
Clemson School of Computing Outstanding Undergraduate Researcher	Spring 2019
Dupont Best Undergraduate Project	Spring 2019

RESEARCH EXPERIENCE:

Volunteer Research Assistant	Fall 2025—Present
Clemson University	Clemson, SC
Graduate Research Assistant	Summer 2019—Spring 2025
Clemson University	Clemson, SC
Undergraduate Research Assistant	Summer 2018—Spring 2019
Clemson University	Clemson, SC
OMNI Internship Program, Graduate Student Researcher	Summer 2024
Oak Ridge National Laboratory	Oak Ridge, TN
GIVENS Scholar, Graduate Student Researcher	Summer 2020, 2022, 2023
Argonne National Laboratory	Lemont, IL

LEADERSHIP EXPERIENCE:

Lead Student Volunteer, Guided Interest Group Leader	Fall 2024
SuperComputing'24	Atlanta, GA
- 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	Fall 2024—Spring 2025
School of Computing Graduate Student Association	Clemson, SC
- Organized 3 professional workshops, 3 social events and a fundraiser - Coordinated with University staff to collaboratively enhance events - Managed organization finances, plans, marketing and personnel	
Lead Student Volunteer, Guided Interest Group Leader, HPC Immersion Mentor	Fall 2023
SuperComputing'23	Denver, CO
- 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	Fall 2020 (Virtual), Fall 2021, Fall 2022
SuperComputing'20, SuperComputing'21, SuperComputing'22	Online; St. Louis, MO; Dallas, TX
- Moderate online discussions and forward questions to presenters - Enable communications between conference organizers and presenters	
Summer Staff Coordinator	Summer 2017
Isaiah 55 Deaf Ministries	La Feria, TX
- Coordinated volunteer team responsibilities - Oversaw and participated in construction projects, craft projects, and recreational projects - Maintained and safeguarded facilities and volunteers	

TEACHING EXPERIENCE:

Graduate Teaching Assistant	Fall 2019 — Spring 2023
Clemson University, School of Computing	Clemson, SC
- Prepared assignments, projects and homework for classes for 30-100+ students - 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	Spring 2017 — Spring 2019
Clemson University, School of Computing	Clemson, SC
- Prepared and introduced labs and projects for up to 30 students - Aided students with questions and problems during lab time and office hours	