
EDUCATION

University of Southern California

Los Angeles, CA

Ph.D. in Computer Science; GPA: 4.0

2020 - 2023

Dissertation: Scientific Workflows: Generation and Benchmarking

Advised by [Dr. Rafael Ferreira da Silva](#)**California State University, Long Beach**

Long Beach, CA

Master of Science in Computer Science; GPA: 4.0

2018 - 2020

Thesis: SharkID: A Framework for Automated Individual Shark Identification

Advised by [Dr. Ju Cheol Moon](#)**Universidade Federal de Itajubá**

Itajubá, Minas Gerais, Brazil

BS Computer Engineering

2011 - 2016

EXPERIENCE

San Diego Supercomputer Center

San Diego, CA

Schmidt AI in Science Postdoctoral Fellow

Jan 2024 – Present

- Lead a team advancing scientific AI workflows, focusing on performance, accuracy, and reproducibility across large-scale data and compute systems.
- Contribute to benchmarking efforts in collaboration with the WIFIRE Lab and Schmidt AI in Science Fellows.
- Support grant writing to secure funding for research on scalable and reproducible AI in science.

Lawrence Livermore National Laboratory

Livermore, CA

Graduate Student Research Assistant

Jan 2023 – Dec 2023

- Designed high-performance workflow components enabling GPU memory transfers and GPU Direct communication.
- Developed primitives for modeling storage- and network-based communication patterns in scientific workflows.

The Aerospace Corporation

El Segundo, CA

Embedded Control Systems Graduate Intern

May 2022 – Dec 2023

- Built and optimized pre-launch certification workflows for multiple launch programs.
- Developed visualization and management tools to streamline workflow execution.
- Automated legacy simulation components to improve reliability and reduce manual overhead.

TEACHING EXPERIENCE

Practicum in Teaching Computer Science

Los Angeles, CA

Head Teaching Assistant

Fall 2023

Principles of Software Development

Los Angeles, CA

Head Teaching Assistant

Fall 2022 - Spring 2023

Principles of Computer Engineering I

Long Beach, CA

Teaching Assistant

Spring 2020

ICPP2025: 54th International Conference on Parallel Processing

Student Program Committee Co-Chair

ICPP2025: 54th International Conference on Parallel Processing (WISDOM Workshop)

Workshop Organizer

CCGrid2025: The IEEE International Symposium on Cluster, Cloud, and Internet Computing

Program Committee Member

CCGrid2025: The IEEE International Symposium on Cluster, Cloud, and Internet Computing

Artifacts Track Chair

SC25: The International Conference for High-Performance Computing, Networking, Storage, and Analysis

Reproducibility Challenge Track Vice-Chair

WiDE24: 2nd Workshop on Workflows in Distributed Environments

Program Committee Member

Euro-PAR24: 30th International European Conference on Parallel and Distributed Computing

Program Committee Member

eScience24: IEEE International Conference on eScience

Program Committee Member

SC24: The International Conference for High-Performance Computing, Networking, Storage, and Analysis

Program Committee Member

WORKS24: 19th Workshop on Workflows in Support of Large-Scale Science

Program Committee Member

Concurrency and Computation: Practice and Experience Journal (Special Edition 2024)

Program Committee Member

WORKS23: 18th Workshop on Workflows in Support of Large-Scale Science

Program Committee Member

rewords23: 3rd Workshop on Reproducible Workflows, Data Management, and Security

Program Committee Member

SC23: The International Conference for High-Performance Computing, Networking, Storage, and Analysis

Program Committee Member

SBAC-PAD23: IEEE/SBC 36th International Symposium on Computer Architecture and High-Performance Computing

Program Committee Member

SC22: The International Conference for High-Performance Computing, Networking, Storage, and Analysis

Program Committee Member and Student Volunteer

ERROR2023: 3rd Workshop on E-science ReseaRch leading to negative Results

Program Committee Member

PEARC22: Practice & Experience in Advanced Research Computing

Program Committee Member

ERROR2022: 2nd Workshop on E-science ReseaRch leading tO negative Results

Program Committee Member

MENTORSHIP

Nirvaan Reddy (Undergrad) <i>Wrench user interface for enhancing simulation accessibility</i>	USC 2021
Manav Kaushik (Masters) <i>WfChef debugging tools, test harnesses, and manuscript preparation</i>	USC 2021
Hena Ahamed (Ph.D.) and Ravi Shende (Undergraduate) <i>BanditWare development, experiment design, and manuscript preparation</i>	UCSD 2024–present

AWARDS & RECOGNITION

Rising Stars in Computational and Data Sciences <i>2023 Rising Stars in Computational and Data Sciences Workshop</i> <i>A prestigious workshop aimed at empowering outstanding graduate students and postdocs, especially from underrepresented genders, who are pursuing academic careers in computational and data sciences.</i>	2023
Best Graduate Research Assistant Award <i>Viterbi Ph.D. Awards Ceremony</i> <i>This ceremony celebrates students' research, service, and academic excellence. The Best Research Assistant Award honors one exceptional student from each academic department within the Viterbi School of Engineering.</i>	2022

WORKS IN PROGRESS / UNDER REVIEW

WfCluster: Using WfChef Patterns to Improve Workflow Scheduling <i>T. Coleman, J. Coleman, R. Ferreira da Silva, F. Suter</i> <i>In Preparation</i>
Toward Agents of Intelligence: Bridging the AI Expertise Gap in Domain Sciences <i>T. Coleman, I. Altıntaş</i> <i>Submitted to The 21st IEEE International Conference on e-Science</i>
A Terminology for Scientific Workflow Systems <i>F. Suter, T. Coleman, I. Altıntaş, ..., R. Ferreira da Silva</i> <i>Under Review</i>

PUBLICATIONS

- [13] **WfCommons - a framework for enabling scientific workflow research and development (Tutorial)**
R. Ferreira da Silva, T. Coleman, F. Suter, H. Casanova
Humboldt University of Berlin, 2025
- [12] **BanditWare: A Contextual Bandit-based Framework for Hardware Prediction**
T. Coleman, H. Ahmed, R. Shende, I. Perez, I. Altıntaş
To Appear, AI4Sys @ Symposium on High-Performance Parallel and Distributed Computing (HPDC), 2025
- [11] **WfCommons - a framework for enabling scientific workflow research and development (Tutorial)**
R. Ferreira da Silva, T. Coleman, F. Suter, H. Casanova
IEEE International Conference on eScience, 2024
- [10] **Automated Generation of Scientific Workflow Generators with WfChef**
T. Coleman, H. Casanova, R. Ferreira da Silva
Future Generation Computer Systems (FGCS), 2023. DOI: 10.1016/j.future.2023.04.031
- [9] **WfBench: Automated Generation of Scientific Workflow Benchmarks**
T. Coleman, H. Casanova, K. Maheshwari, L. Pottier, S. R. Wilkinson, J. Wozniak, F. Suter, M. Shankar, R. Ferreira da Silva
IEEE/ACM PMBS, 2022. DOI: 10.1109/PMBS56514.2022.00014
- [8] **WfCommons: A Framework for Enabling Scientific Workflow Research and Development**
T. Coleman, H. Casanova, L. Pottier, M. Kaushik, E. Deelman, R. Ferreira da Silva
Future Generation Computer Systems, 2022. DOI: 10.1016/j.future.2021.09.043

- [7] **WfChef: Automated Generation of Accurate Scientific Workflow Generators**
T. Coleman, H. Casanova, R. Ferreira da Silva
IEEE International Conference on eScience, 2021
- [6] **A Community Roadmap for Scientific Workflows Research and Development**
R. Ferreira da Silva, H. Casanova, K. Chard, I. Altıntaş, R. M. Badia, B. Balis, T. Coleman, ..., M. Wolf
IEEE WORKS, 2021
- [5] **Evaluating Energy-Aware Scheduling Algorithms for I/O-Intensive Scientific Workflows**
T. Coleman, H. Casanova, T. Gwartney, R. Ferreira da Silva
International Conference on Computational Science, 2021. DOI: 10.1007/978-3-030-77961-0_16
- [4] **Workflows Community Summit: Bringing the Scientific Workflows Community Together**
R. Ferreira da Silva, H. Casanova, K. Chard, ..., T. Coleman, ..., J. Wozniak
arXiv:2103.09181, 2021
- [3] **Workflows Community Summit: Advancing the State-of-the-art of Scientific Workflows Management Systems Research and Development**
R. Ferreira da Silva, H. Casanova, K. Chard, T. Coleman, D. Laney, D. Ahn, ..., J. Wozniak
arXiv:2106.05177, 2021
- [2] **WorkflowHub: Community Framework for Enabling Scientific Workflow Research and Development**
R. Ferreira da Silva, L. Pottier, T. Coleman, E. Deelman, H. Casanova
IEEE WORKS, 2020. DOI: 10.1109/WORKS51914.2020.00012
- [1] **A Biometric for Shark Dorsal Fins Based on Boundary Descriptor Matching**
T. Coleman, J. Moon
CAINE (International Conference on Computer Applications in Industry and Engineering), 2019

PROJECTS

WfCommons (wfcommons.org)

An open-source toolkit for analyzing, synthesizing, and benchmarking scientific workflows

2020–Present

National Data Platform (nationaldatapatform.org)

A federated and extensible data ecosystem to promote collaboration, innovation, and use of data on top of existing cyberinfrastructure capabilities.

2024–Present