TAINÃ COLEMAN

Marina del Rey, CA 90292 ⋄ tainagdcoleman@gmail.com ⋄ tainacoleman.com

RESEARCH INTERESTS

Second-year Ph.D. student at USC with research interest in Distributed Computing (specifically HPC, Distributed Scientific Workflows and Workflows Management Systems), Pattern Recognition, Machine Learning, Data Science, Big Data.

SKILLS

- Linux/Unix systems
- GitHub, GitPod, Docker, MongoDB, Mural
- Python, HTML, C/C++, Java, MATLAB, React
- Python: pandas, scipy, plotly, dash, matplotlib, multiprocessing, networkx, numpy, TensorFlow
- Languages: Portuguese (Brazil) and English

EDUCATION

University of Southern California, Los Angeles, CA 2020 - Present
Ph.D. Computer Science *4.0*

California State University Long Beach, Long Beach, CA 2018 - 2020
MS Computer Science *4.0*

Universidade Federal de Itajubá, Minas Gerais, Brazil 2011 - 2016
BS Computer Engineering

RESEARCH EXPERIENCE

University of Southern California, Los Angeles, CA 2020 - Present
Graduate Research Assistant

- Conduct research on automating the construction of scientific workflows (data processing pipelines). Developed a component to the open-source framework WfCommons, WfChef, that automatically detects and replicates core structures in scientific workflows. This tool allows for the construction of realistic synthetic instances of any size that are application and platform-independent.
- Develop workflow benchmarks to address the notoriously complex performance behavior of distributed scientific workflows. Using WfChef, the goal is to create realistic synthetic instances as a basis to provide I/O-CPU-Memory intensive benchmarks.
- Develop and maintain WfCommons - an open-source community framework for scientific workflows. Address issues and suggestions brought by users on WfCommon's GitHub repository. Participate in framework version releases.
- Organized and attended WorkflowsRI Community Summits - a community effort towards an Infrastructure for Scientific Workflow Management Systems. Coordinated sessions and took notes of the discussions.
- Organized and attended Robust Science Virtual World Café 1 and Robust Science Virtual World Café 2. Planned and organized the events throughout the course of a year. Supported discussion sections by coordinating/taking notes with Mural - tool used in the event. Participated on the discussions of how to achieve Robust Science in the current diverse field of computer science.

California State University Long Beach, Long Beach, CA 2018 - 2020
Graduate Research Assistant

- Develop a Python framework based on image segmentation to individually identify sharks using machine learning and boundary descriptor matching techniques.
- Create a database of shark dorsal fins for this study in partnership with the CSULB Shark Lab.

TEACHING EXPERIENCE

California State University Long Beach Spring 2020
Teaching Associate

- Conduct laboratory classes for undergraduate Computer Engineering class - CECS 211: Principles of Computer Engineering I. Assisted with the execution of experiments by setting up necessary hardware and software, graded assignments, taught concepts pertinent to the assignment.

WORK EXPERIENCE

Information Technician 2018 - 2020
California State University Long Beach - Associated Students Inc., Long Beach, CA

- Provide technical support to the staff in the ASI buildings.
- Troubleshoot and deploy computers (Macbook, iMac, Windows, Linux), mobile devices (cellphones, tablets), and printers.
- Deployment and maintain Internet and phone cables.
- User account creation/deletion/maintenance in Active Directory, including management of group policies.

Software Development Intern Summer 2014
Big Pine Paiute Tribe of the Owens Valley, Big Pine, CA

- Develop and deploy a membership management system (written in Java) for the Tribal Wellness Center that created membership cards and kept records of members' check-in and check-out activities.

Computer Engineering Social Issues Director 2012
Universidade Federal de Itajubá, Minas Gerais, Brazil

- Work with a team of directors to organize and find sponsors for campus-wide events.
- Guide students through the scholarship process.
- Assist in the management of the computer engineering department by coordinating classes and professional events/opportunities.

PUBLICATIONS

- **Coleman, T.**, Casanova, H., Pottier, L., Kaushik, M., Deelman, E., da Silva, R. F. (2022). WfCommons: A framework for enabling scientific workflow research and development. Future Generation Computer Systems, 128, 16-27. DOI: 10.1016/j.future.2021.09.043.
- **Coleman, T.**, Casanova, H., & da Silva, R. F. (2021, September). WfChef: Automated Generation of Accurate Scientific Workflow Generators. In 2021 IEEE 17th International Conference on eScience (eScience) (pp. 159-168). IEEE.
- Da Silva, R. F., Casanova, H., Chard, K., Altintas, I., Badia, R. M., Balis, B., **Coleman, T.**... & Wolf, M. (2021, November). A community roadmap for scientific workflows research and development. In 2021 IEEE Workshop on Workflows in Support of Large-Scale Science (WORKS) (pp. 81-90). IEEE.

- **Coleman, T.**, Casanova, H., Gwartney, T., da Silva, R. F. (2021, June). Evaluating Energy-Aware Scheduling Algorithms for I/O-Intensive Scientific Workflows. In International Conference on Computational Science (pp. 183-197). Springer, Cham. DOI: 10.1007/978-3-030-77961-0_16.
- da Silva, R. F., Casanova, H., Chard, K., Laney, D., Ahn, D., Jha, S., .., Bonazzi, V., **Coleman,T.**, ... & Woziak, J. (2021). Workflows community summit: Bringing the scientific workflows community together. arXiv preprint arXiv:2103.09181.
- da Silva, R. F., Casanova, H., Chard, K., **Coleman, T.**, Laney, D., Ahn, D., ... & Wozniak, J. (2021). Workflows Community Summit: Advancing the State-of-the-art of Scientific Workflows Management Systems Research and Development. arXiv preprint arXiv:2106.05177.
- da Silva, R. F., Pottier, L., **Coleman, T.**, Deelman, E., Casanova, H. (2020, November). WorkflowHub: community framework for enabling scientific workflow research and development. In 2020 IEEE/ACM Workflows in Support of Large-Scale Science (WORKS) (pp. 49-56). IEEE. DOI: 10.1109/WORKS51914.2020.00012.
- **Coleman, T.**, Moon, J. (2019, September). A biometric for shark dorsal fins based on boundary descriptor matching. In Proceedings of 32nd International Conference on Computer Applications in Industry and Engineering (CAINE)(Vol. 63, pp. 63-71).

AWARDS AND RECOGNITION

Best Paper Award 2019

- **Coleman, T.**, Moon, J. (2019, September). A biometric for shark dorsal fins based on boundary descriptor matching. In Proceedings of 32nd International Conference on Computer Applications in Industry and Engineering (CAINE)(Vol. 63, pp. 63-71).

Best Graduate Research Assistant Award 2022

- 2022 Viterbi Graduate Awards at University of Southern California.