RAFAEL FERREIRA DA SILVA, Ph.D.

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APPOINTMENTS

2016-present **Research Assistant Professor**
University of Southern California, Department of Computer Science

2019-present **Research Lead**
University of Southern California, Information Sciences Institute

2013-2019 **Computer Scientist**
University of Southern California, Information Sciences Institute

My main research topic is on the optimization of the execution of scientific workflows on distributed computing systems. In particular, my work is focused on the execution of eScience applications with the Pegasus workflow management system. Other research topics include optimization methods and applications for high performance and high throughput computing, data science, and reproducibility.

2010-2013 **Software Engineer**
Centre National de la Recherche Scientifique (CNRS), France

As a software engineer of the Virtual Imaging Platform (VIP) I was responsible for the life cycle of the project software from the user- to middleware-level. My work included the design, management, development, and deployment of the software stack from the VIP platform. A non-exhaustive list of software includes a web portal, a workflow engine, a grid middleware, and their associated services. Additionally, I also implemented software development and maintenance processes and methods.

EDUCATION

2013 **Doctor of Philosophy in Computer Science**
Institut National des Sciences Appliquées de Lyon, France
"A science-gateway for workflow executions: online and non-clairvoyant self-healing of workflow executions on grids"

My PhD thesis aimed to reach a general model of a scientific gateway that could autonomously detect and handle operational incidents during workflow executions. Our approach is based on the MAPE-K loop to determine incident degrees and to perform fault-tolerance actions. The strategy was implemented and deployed in a production environment. Results show that the proposed method speeds up execution up to a factor of 4, and properly detects unrecoverable errors.

2010 **Master of Science in Computer Science**
Federal University of Campina Grande (UFCG), Brazil

2007 **Bachelor of Science in Computer Science**
Federal University of Paraiba (UFPB), Brazil

PROFESSIONAL ACTIVITIES

Funding Agencies Reviewer

- National Science Foundation (NSF), Review Panel and Ad-hoc Reviewer, 2017–present.
- Army Research Office (ARO), Ad-hoc Reviewer, 2020.
- Netherlands Organisation for Scientific Research (NWO), Ad-hoc reviewer, 2019.

Program Committee Member

- 35th IEEE International Parallel & Distributed Processing Symposium (IPDPS), Portland, USA, 2021.
- The International Conference for High Performance Computing, Networking, Storage, and Analysis (SC21), USA, 2021.
- IEEE Cluster, Portland, USA, 2021.
- 9th International Workshop on Clouds and (eScience) Applications Management (CloudAM'19), Leicester, UK, 2020.
- 15th Workflows in Support of Large-Scale Science (WORKS), Atlanta, USA, 2020.
- 40th IEEE International Conference on Distributed Computing Systems (ICDCS), Singapore.
- 48th International Conference on Parallel Processing (ICPP 2019), Kyoto, Japan, 2019.
- IEEE Cluster, Albuquerque, NM, USA, 2019.
- 31st International Symposium on Computer Architecture and High Performance Computing (SBAC-PAD), Campo Grande, Brazil, 2019.
- 14th Workflows in Support of Large-Scale Science (WORKS), Denver, USA, 2019.
- 8th International Workshop on Clouds and (eScience) Applications Management (CloudAM'19), Auckland, New Zealand, 2019.
- 12th International Conference on Internet and Distributed Computing Systems (IDCS'19), Napoli, Italy, 2019.
- 13th Workflows in Support of Large-Scale Science (WORKS), Dallas, USA, 2018.
- IEEE Cluster, Belfast, UK, 2018.
- 18th IEEE/ACM International Symposium on Cluster, Cloud, and Grid Computing (CCGrid'18), Washington DC, USA, 2018.
- 7th International Workshop on Clouds and (eScience) Applications Management (CloudAM'18), Zurich, Switzerland, 2018.
- 30th International Symposium on Computer Architecture and High Performance Computing (SBAC-PAD), Lyon, France, 2018.
- 16th International Conference on High Performance Computing & Simulation (HPCS), Orléans, France, 2018.
- IEEE Cluster, Honolulu, USA, 2017.
- 17th IEEE/ACM International Symposium on Cluster, Cloud, and Grid Computing (CCGrid'17), Madrid, Spain, 2017.
- 12th Workflows in Support of Large-Scale Science (WORKS), Denver, USA, 2017.
- 29th International Symposium on Computer Architecture and High Performance Computing (SBAC-PAD), Campinas, Brazil, 2017.
- 6th International Workshop on Clouds and (eScience) Applications Management (CloudAM'17), Austin, USA, 2017.
- 11th Workflows in Support of Large-Scale Science (WORKS), Salt Lake City, USA, 2016.
- 28th International Symposium on Computer Architecture and High Performance Computing (SBAC-PAD), Los Angeles, USA, 2016.
- 1st International Workshop on Reproducible Open Science (RepScience), Hannover, Germany, 2016.
- 5th International Workshop on Clouds and (eScience) Applications Management

(CloudAM'16), Shangai, China, 2016.
- 16th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid'16), Cartagena, Colombia, 2016.
- 15th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid'15), Shenzhen, Guangdong, China, 2015.
- International Workshop on Clouds and (eScience) Applications Management (CloudAM'15), Cyprus, UK, 2015.
- International Workshop on Clouds and (eScience) Applications Management (CloudAM'14), London, UK, 2014.

Chair
- Publicity and Web Chair, 16th IEEE International Conference on e-Science (eScience), Conference, Innsbruck, Austria, 2021.
- Chair, 15th Workflows in Support of Large-Scale Science (WORKS), Workshop, Atlanta, USA, 2020.
- Track Chair, 16th International Conference on eScience (eScience), Conference, Osaka, Japan, USA, 2020.
- Chair, 14th Workflows in Support of Large-Scale Science (WORKS), Workshop, Denver, USA, 2019.
- Chair, Bridging from Concepts to Data and Computation for eScience (BC2DC), Workshop, San Diego, USA, 2019.
- Track Chair, 15th International Conference on eScience (eScience), Conference, San Diego, USA, 2019.
- Chair, 13th Workflows in Support of Large-Scale Science (WORKS), Workshop, Dallas, USA, 2018.
- Organizer, 2018 National Science Foundation Software Infrastructure for Sustained Innovation Principal Investigators Meeting (NSF SI2 PI Meeting), Washington, USA, 2018.
- Publicity Chair, 12th Workflows in Support of Large-Scale Science (WORKS), Workshop, Denver, USA, 2017.
- Publicity Chair, 11th Workflows in Support of Large-Scale Science (WORKS), Workshop, Salt Lake City, USA, 2016.
- Local Arrangements Chair, 28th International Symposium on Computer Architecture and High Performance Computing (SBAC-PAD), Conference, Los Angeles, USA, 2016.

Editor
- Editor, Future Generation Computer Systems, 2020-present.
- Associated Editor, Journal of Parallel and Distributed Computing, 2019-present.
- Guest Editor, Future Generation Computer Systems, Special Issue on Workflows in Support of Large-Scale Science, 2018.

Journal Reviewer
- Future Generation Computer Systems, 2013–present.
- IEEE Transactions on Parallel and Distributed Systems, 2014–present.
- IEEE Transactions on Cloud Computing, 2016-present.
- Concurrency and Computation: Practice and Experience, 2013–2019.
- ACM Computer Surveys, 2018-2019.
- SoftwareX, 2018-2019.
- Journal of Grid Computing, 2016–2018.
- ACM Transactions on Parallel Computing, 2017–2018.
- Computers & Electrical Engineering, 2015–2017.
- Journal of Parallel and Distributed Computing, 2015.
- Computing and Informatics, 2015.
- IEEE Communications Magazine, 2014.
- Scientific Programming, 2014.
- The Computer Journal, 2014.

Conference Reviewer

- 20th IEEE/ACM International Symposium on Cluster, Cloud and Internet Computing (CCGrid), Melbourne, Australia.
- ACM Platform for Advanced Scientific Computing (PASC), Zurich, Switzerland, 2019.
- 13th IEEE International Conference on e-Science (eScience'17), Auckland, New Zealand, 2017.
- IEEE Cluster, Taipei, Taiwan, 2016.
- 30th IEEE International Parallel & Distributed Processing Symposium (IPDPS), Chicago, USA, 2016.
- 11th IEEE International Conference on e-Science (eScience'15), Munich, Germany, 2015.
- 10th Workflows in Support of Large-Scale Science (WORKS), Austin, USA, 2015.
- Euro-Par, Vienna, Austria, 2015.
- IEEE International Conference on Cloud Engineering (IC2E), Tempe, USA, 2014.
- 10th IEEE International Conference on e-Science (eScience'14), Guarujá, Brazil, 2014.
- SuperComputing'14, New Orleans, USA, 2014.
- 14th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid 2014), Chicago, USA, 2014.
- SuperComputing'13, Denver, USA, 2013.
- 10th International Conference on Parallel Processing and Applied Mathematics (PPAM), Warsaw, Poland, 2013.
- 1st International Workshop on Autonomic Management of Grid and Cloud Computing (AMGCC13), Miami, USA, 2013.

TEACHING ACTIVITIES

- USC, Computer Science Department, INF 553 Data Mining (graduate level), Fall 2018.
- USC, Computer Science Department, CS 104 Data Structures and Object-Oriented Design (undergraduate level), Spring 2017.

INVITED TALKS

- FAIR Workflow Traces for Scientific Workflow Research and Development (workflowhub.org), *International FAIR Convergence Symposium, FAIR Workflows Session*, online event, 2020.
- Computational methods for improving reproducible results in analysis, *EPI Symposium: Toward more rigorous and informative nutritional epidemiology: the rational space between dismissal and defense of the status quo*, Indiana University, online event, 2020.
- The Interplay of Workflow Execution and Resource Provisioning, *18th SIAM Conference on Parallel Processing for Scientific Computing – Resource Management, Scheduling, Workflows: Critical Middleware for HPC and Clouds*, SIAM PP 18, Tokyo, Japan, 2018.
- Automating Real-Time Seismic Analysis: Through Streaming and High Throughput Workflows, *Workshop on Environmental Computing Applications – State of the art*, ICCS, San Diego, CA, USA, 2016.
- Automating Scientific Computations: From the User's Desktop to Clouds and World-Class Supercomputers, *IRIS Workshop*, Vancouver, WA, USA, 2016.

RESEARCH GRANTS

- **PI**, *CCRI: Planning: Collaborative Research: Infrastructure for Enabling Systematic Development and Research of Scientific Workflow Management Systems,* NSF, 10/2020-09/2021, $100,000, grants #2016610, #2016619, and #2016682.
- **Co-PI**, *Collaborative Research: PPoSS: Planning: Performance Scalability, Trust, and Reproducibility: A Community Roadmap to Robust Science in High-throughput Applications*, NSF, 10/2020-09/2021, $250,000, grants #2028881, #2028923, #2028930, #2028955, and #2028956.

- **PI**, *Teaching Parallel and Distributed Computing Concepts in Simulation*, USC URAP, 08/2020-05/2021, $3,300.
- **Co-PI**, *Collaborative Research: CyberTraining: Implementation: Small: Integrating core CI literacy and skills into university curricula via simulation-driven activities*, NSF, 10/2019–09/2022, $500,000, grants #1923539 and #1923621.
- **PI**, *Integrating core CI literacy and skills into university curricula via simulation-driven activities*, USC URAP, 08/2019-05/2020, $2,825.
- **Co-PI**, *Coordinating Curricula and User Preferences to Increase the Participation of Women and Students of Color in Engineering*, NSF, 10/2018–09/2020, $300,000, grant #1826632.
- **Co-PI**, *2018 Software Infrastructure for Sustained Innovation (SI2) Principal Investigators Workshop*, NSF, 06/2018–05/2019, $85,065, grant #1831393.
- **Co-PI**, *MINT: Model Integration through Knowledge-Rich Data and Process Composition*, DARPA, 12/2017–11/2021, $12,979,881, grant #W911NF-18-1-0027.
- **Co-PI**, *BIGDATA: IA: Collaborative Research: In Situ Data Analytics for Next Generation Molecular Dynamics Workflows*, NSF, 10/2017–09/2021, $1,993,043, grants #1741057, #1740990, and #1741040.
- **Co-PI**, *Collaborative Research: SI2-SSE: WRENCH: A Simulation Workbench for Scientific Workflow for Users, Developers, and Researchers*, NSF, 01/2017—12/2019, $497,956, grants #1642369 and #1642335.

PUBLICATIONS

Journals

1. T. M. A. Do, L. Pottier, S. Caíno-Lores, R. Ferreira da Silva, M. A. Cuendet, H. Weinstein, T. Estrada, M. Taufer, and E. Deelman, A Lightweight Method for Evaluating In Situ Workflow Efficiency, *Journal of Computational Science*, 2020.
2. G. Papadimitriou, C. Wang, K. Vahi, R. Ferreira da Silva, A. Mandal, L. Zhengchun, R. Mayani, M. Rynge, M. Kiran, V. E. Lynch, R. Kettimuthu, E. Deelman, J. S. Vetter, and I. Foster, End-to-End Online Performance Data Capture and Analysis for Scientific Workflows, *Future Generation Computer Systems*, 2020.
3. R. Ferreira da Silva, H. Casanova, A. Orgerie, R. Tanaka, E. Deelman, and F. Suter, Characterizing, Modeling, and Accurately Simulating Power and Energy Consumption of I/O-intensive Scientific Workflows, *Journal of Computational Science*, vol. 44, 2020.
4. E. Deelman, R. Ferreira da Silva, K. Vahi, M. Rynge, R. Mayani, R. Tanaka, W. Whitcup, and M. Livny, "The Pegasus Workflow Management System: Translational Computer Science in Practice," Journal of Computational Science, 2020.
5. H. Casanova, R. Ferreira da Silva, R. Tanaka, S. Pandey, G. Jethwani, W. Koch, S. Albrecht, J. Oeth, and F. Suter, Developing Accurate and Scalable Simulators of Production Workflow Management Systems with WRENCH, *Future Generation Computer Systems*, vol. 112, p. 162-175, 2020.
6. R. Ferreira da Silva, S. Callaghan, T. M. A. Do, G. Papadimitriou, and E. Deelman, Measuring the Impact of Burst Buffers on Data-Intensive Scientific Workflows, *Future Generation Computer Systems*, vol. 101, p. 208–220, 2019.
7. E. Deelman, K. Vahi, M. Rynge, R. Mayani, R. Ferreira da Silva, G. Papadimitriou, and M. Livny, The Evolution of the Pegasus Workflow Management Software, *Computing in Science Engineering*, vol. 21, iss. 4, p. 22–36, 2019.
8. R. Ferreira da Silva, R. Filgueira, E. Deelman, E. Pairo-Castineira, I. M. Overton, and M. Atkinson, Using Simple PID-inspired Controllers for Online Resilient Resource Management of Distributed Scientific Workflows, *Future Generation Computer Systems*, vol. 95, pp.615-628, 2019.
9. A. Brinckman, E. Deelman, S. Gupta, J. Nabrzyski, S. Park, R. Ferreira da Silva, I. J. Taylor, and K. Vahi, Collaborative Circuit Designs using the CRAFT Repository, *Future Generation Computer Systems*, vol. 94, pp.841-853, 2019.
10. T. Glatard, G. Kiar, T. Aumentado-Armstrong, N. Beck, P. Bellec, R. Bernard, A. Bonnet, S. T. Brown, S. Camarasu-Pop, F. Cervenansky, S. Das, R. Ferreira da Silva, G. Flandin, P.

Girard, and others, Boutiques: a flexible framework to integrate command-line applications in computing platforms, *GigaScience*, 2018.
11. B. Tovar, R. Ferreira da Silva, G. Juve, E. Deelman, W. Allcock, D. Thain, and M. Livny, A Job Sizing Strategy for High-Throughput Scientific Workflows, *IEEE Transactions on Parallel and Distributed Systems*, vol. 29, iss. 2, pp. 240-253, 2018.
12. R. Ferreira da Silva, R. Filgueira, I. Pietri, M. Jiang, R. Sakellariou, and E. Deelman, A Characterization of Workflow Management Systems for Extreme-Scale Applications, *Future Generation Computer Systems*, vol. 75, pp. 228-238, 2017.
13. T. Glatard, M. Rousseau, S. Camarasu-Pop, R. Adalat, N. Beck, S. Das, R. Ferreira da Silva, N. Khalili-Mahani, V. Korkhov, P. Quirion, P. Rioux, S. D. Olabarriaga, P. Bellec, and A. C. Evans, Software architectures to integrate workflow engines in science gateways, *Future Generation Computer Systems*, vol. 75, pp. 239-255, 2017.
14. I. Santana-Perez, R. Ferreira da Silva, M. Rynge, E. Deelman, M. S. Pérez-Hernández, and O. Corcho, Reproducibility of execution environments in computational science using semantics and clouds, *Future Generation Computer Systems*, vol. 67, pp.354-367, 2017.
15. E. Deelman, C. Carothers, A. Mandal, B. Tierney, J. S. Vetter, I. Baldin, C. Castillo, G. Juve, D. Krol, V. Lynch, B. Mayer, J. Meredith, T. Proffen, P. Ruth, and R. Ferreira da Silva, PANORAMA: An Approach to Performance Modeling and Diagnosis of Extreme Scale Workflows, *International Journal of High Performance Computing Applications*, vol. 31, iss. 1, pp. 4-18, 2017.
16. E. Deelman, K. Vahi, M. Rynge, G. Juve, R. Mayani, and R. Ferreira da Silva, Pegasus in the Cloud: Science Automation through Workflow Technologies, *IEEE Internet Computing*, 20(1), pp. 70-76, 2016.
17. R. Ferreira da Silva, G. Juve, M. Rynge, E. Deelman, and M. Livny, Online Task Resource Consumption Prediction for Scientific Workflows, *Parallel Processing Letters*, 25(3), 2015.
18. W. Chen, R. Ferreira da Silva, E. Deelman, and R. Sakellariou, Using imbalance metrics to optimize task clustering in scientific workflow executions, *Future Generation Computer Systems*, vol. 46, pp. 69-84, 2015.
19. E. Deelman, K. Vahi, G. Juve, M. Rynge, S. Callaghan, P. J. Maechling, R. Mayani, W. Chen, R. Ferreira da Silva, M. Livny, and K. Wenger, Pegasus, a workflow management system for science automation, *Future Generation Computer Systems*, vol. 46, pp. 17-35, 2015.
20. T. Glatard, L. B. Lewis, R. Ferreira da Silva, R. Adalat, N. Beck, C. Lepage, P. Rioux, M. Rousseau, T. Sherif, E. Deelman, N. Khalili-Mahani, and A. C. Evans, Reproducibility of neuroimaging analyses across operating systems, *Frontiers in Neuroinformatics*, 9(12), 2015.
21. J. Howison, E. Deelman, M. J. McLennan, R. Ferreira da Silva, and J. D. Herbsleb, Understanding the scientific software ecosystem and its impact: Current and future measures, Research Evaluation, 2015.
22. W. Chen, R. Ferreira da Silva, E. Deelman, and T. Fahringer, Dynamic and fault-tolerant clustering for scientific workflows, *IEEE Transactions on Cloud Computing*, 2015.
23. T. Glatard, L. B. Lewis, R. Ferreira da Silva, R. Adalat, N. Beck, C. Lepage, P. Rioux, M. Rousseau, T. Sherif, E. Deelman, N. Khalili-Mahani, and A. C. Evans, Reproducibility of neuroimaging analyses across operating systems, *Frontiers in Neuroinformatics*, 9(12), 2015.
24. R. Ferreira da Silva, T. Glatard, and F. Desprez, Controlling fairness and task granularity in distributed, online, non-clairvoyant workflow executions, *Concurrency and Computation: Practice and Experience*, 26(14), pp. 2347-2366, 2014.
25. R. Ferreira da Silva, T. Glatard, and F. Desprez, Self-healing of workflow activity incidents on distributed computing infrastructures, *Future Generation Computer Systems*, 29(8), pp. 2284-2294, 2013.
26. T. Glatard, C. Lartizien, B. Gibaud, R. Ferreira da Silva, G. Forestier, F. Cervenansky, M. Alessandrini, H. Benoit-Cattin, O. Bernard, S. Camarasu-Pop, N. Cerezo, P. Clarysse, A. Gaignard, P. Hugonnard, H. Liebgott, S. Marache, A. Marion, J. Montagnat, J. Tabary, and D. Friboulet, A virtual imaging platform for multi-modality medical image simulation,

IEEE Transactions on Medical Imaging, 32(1), pp. 110-118, 2013.

27. S. Camarasu-Pop, T. Glatard, R. Ferreira da Silva, P. Gueth, D. Sarrut, and H. Benoit-Cattin, Monte carlo simulation on heterogeneous distributed systems: a computing framework with parallel merging and checkpointing strategies, *Future Generation Computer Systems*, 29(3), pp. 728-738, 2013.
28. F. Brasileiro, M. Gaudencio, R. Ferreira da Silva, A. Duarte, D. Carvalho, D. Scardaci, L. Ciuffo, R. Mayo, H. Hoeger, M. Stanton, R. Ramos, R. Barbera, B. Marechal, and P. Gavillet, Using a simple prioritisation mechanism to effectively interoperate service and opportunistic grids in the eela-2 e-infrastructure, *Journal of Grid Computing*, vol. 9, pp. 241-257, 2011.

Conference / Workshop Papers

1. R. Ferreira da Silva, L. Pottier, T. Coleman, E. Deelman, and H. Casanova, *WorkflowHub: Community Framework for Enabling Scientific Workflow Research and Development,* in 2020 IEEE/ACM Workflows in Support of Large-Scale Science (WORKS), 2020, p. 49–56.
2. H. Casanova, R. Ferreira da Silva, A. Gonzalez-Escribano, W. Koch, Y. Torres, and D. P. Bunde, *Peachy Parallel Assignments (EduHPC 2020)*, in 2020 IEEE/ACM Workshop on Education for High-Performance Computing (EduHPC), 2020, p. 53–58.
3. J. C. Adams, G. Back, P. Bala, M. K. Bane, K. Cameron, H. Casanova, M. Ellis, R. Ferreira da Silva, G. Jethwani, W. Koch, T. Lee, and T. Zhu, *Lightning Talks of EduHPC 2020*, in Lightning Talks of EduHPC 2020, 2020, p. 59–64.
4. L. Pottier, R. Ferreira da Silva, H. Casanova, and E. Deelman, *Modeling the Performance of Scientific Workflow Executions on HPC Platforms with Burst Buffers*, in IEEE Cluster, 2020.
5. T. M. A. Do, L. Pottier, S. Thomas, R. Ferreira da Silva, M. A. Cuendet, H. Weinstein, T. Estrada, M. Taufer, and E. Deelman, *A Novel Metric to Evaluate In Situ Workflows*, in International Conference on Computational Science (ICCS), 2020.
6. R. Mitchell, L. Pottier, S. Jacobs, R. Ferreira da Silva, M. Rynge, K. Vahi, and E. Deelman, *Exploration of Workflow Management Systems Emerging Features from Users Perspectives*, in First International Workshop on Big Data Tools, Methods, and Use Cases for Innovative Scientific Discovery (BTSD), 2019.
7. R. Ferreira da Silva, R. Mayani, Y. Shi, A. R. Kemanian, M. Rynge, and E. Deelman, *Empowering Agroecosystem Modeling with HTC Scientific Workflows: The Cycles Model Use Case*, in First International Workshop on Big Data Tools, Methods, and Use Cases for Innovative Scientific Discovery (BTSD), 2019.
8. R. Tanaka, H. Casanova, and R. Ferreira da Silva, *Teaching Parallel and Distributed Computing Concepts in Simulation with WRENCH*, in Workshop on Education for High-Performance Computing (EduHPC), 2019.
9. R. Ferreira da Silva, H. Casanova, R. Tanaka, F. Suter, *Bridging Concepts and Practice in eScience via Simulation-driven Engineering*, in Workshop on Bridging from Concepts to Data and Computation for eScience (BC2DC'19), 2019.
10. R. Ferreira da Silva, A. Orgerie, H. Casanova, R. Tanaka, E. Deelman, and F. Suter, *Accurately Simulating Energy Consumption of I/O-intensive Scientific Workflows*, in 2019 International Conference on Computational Science (ICCS), 2019.
11. K. Vahi, M. Rynge, G. Papadimitriou, D. Brown, R. Mayani, R. Ferreira da Silva, E. Deelman, A. Mandal, E. Lyons, and M. Zink, *Custom Execution Environments with Containers in Pegasus-enabled Scientific Workflows*, in 15th eScience Conference, 2019.
12. S. Thomas, M. Wyatt, T. M. A. Do, L. Pottier, R. Ferreira da Silva, H. Weinstein, M. A. Cuendet, T. Estrada, E. Deelman, and M. Taufer, *Characterization of In Situ and In Transit Analytics of Molecular Dynamics Simulations for Next-generation Supercomputers*, in 15th eScience Conference, 2019.
13. S. Bogol, P. Brenner, A. Brinckman, E. Deelman, R. Ferreira da Silva, S. Gupta, J. Nabrzyski, S. Park, D. Perez, M. Rynge, I. Taylor, K. Vahi, M. V. Werf, R. Sarah, and S. Wyngaard, *A Secure Gateway for Enabling ASIC Design Collaborations*, in 11th

International Workshop on Science Gateways (IWSG 2019), 2019.

14. S. Herbein, D. Domyancic, P. Minner, I. Laguna, R. Ferreira da Silva, and D. H. Ahn, *MCEM: Multi-Level Cooperative Exception Model for HPC Workflows*, in 9th International Workshop on Runtime and Operating Systems for Supercomputers (ROSS 2019), 2019.
15. D. Garijo, D. Khider, V. Ratnakar, Y. Gil, E. Deelman, R. Ferreira da Silva, C. Knoblock, Y. Chiang, M. Pham, J. Pujara, B. Vu, D. Feldman, R. Mayani, K. Cobourn, C. Duffy, A. Kemanian, L. Shu, V. Kumar, A. Khandelwal, K. Tayal, S. Peckham, M. Stoica, A. Dabrowski, D. Hardesty-Lewis, and S. Pierce, *An Intelligent Interface for Integrating Climate, Hydrology, Agriculture, and Socioeconomic Models*, in ACM 24th International Conference on Intelligent User Interfaces (IUI'19), 2019, p. 111–112.
16. H. Casanova, S. Pandey, J. Oeth, R. Tanaka, F. Suter, and R. Ferreira da Silva, *WRENCH: Workflow Management System Simulation Workbench*, in 13th Workshop on Workflows in Support of Large-Scale Science (WORKS'18), 2018.
17. R. Ferreira da Silva, D. Garijo, S. Peckham, Y. Gil, E. Deelman, and V. Ratnakar, *Towards Model Integration via Abductive Workflow Composition and Multi-Method Scalable Model Execution*, in 9th International Congress on Environmental Modelling and Software, 2018.
18. Y. Gil, K. Cobourn, E. Deelman, C. Duffy, R. Ferreira da Silva, A. Kemanian, C. Knoblock, V. Kumar, S. Peckham, L. Carvalho, Y. Chiang, D. Garijo, D. Khider, A. Khandelwal, M. Pahm, J. Pujara, V. Ratnakar, M. Stoica, and B. Vu, *MINT: Model Integration Through Knowledge-Powered Data and Process Composition*, in 9th International Congress on Environmental Modelling and Software, 2018.
19. R. Filgueira, R. Ferreira da Silva, E. Deelman, V. Christodoulou, and A. Krause, *IoT-Hub: New IoT data-platform for Virtual Research Environments*, in 10th International Workshop on Science Gateways (IWSG 2018), 2018.
20. R. Ferreira da Silva, S. Callaghan, and E. Deelman, *On the Use of Burst Buffers for Accelerating Data-Intensive Scientific Workflows*, in 12th Workshop on Workflows in Support of Large-Scale Science (WORKS'17), 2017.
21. A. Mandal, P. Ruth, I. Baldin, R. Ferreira da Silva, and E. Deelman, *Toward Prioritization of Data Flows for Scientific Workflows Using Virtual Software Defined Exchanges*, in First International Workshop on Workflow Science (WoWS 2017), 2017.
22. V. Lynch, J. B. Calvo, E. Deelman, R. Ferreira da Silva, M. Goswami, Y. Hui, E. Lingerfelt, and J. Vetter, *Distributed Workflows for Modeling Experimental Data*, in 2017 IEEE High Performance Extreme Computing Conference, 2017.
23. I. J. Taylor, A. Brinckman, E. Deelman, R. Ferreira da Silva, S. Gupta, J. Nabrzyski, S. Park, and K. Vahi, *Accelerating Circuit Realization via a Collaborative Gateway of Innovations*, in 9th International Workshop on Science Gateways (IWSG 2017), 2017.
24. R. Ferreira da Silva, R. Filgueira, E. Deelman, E. Pairo-Castineira, I. M. Overton, and M. Atkinson, *Using Simple PID Controllers to Prevent and Mitigate Faults in Scientific Workflows*, in 11th Workflows in Support of Large-Scale Science (WORKS), 2016.
25. R. Filgueira, R. Ferreira da Silva, A. Krause, E. Deelman, and M. Atkinson, *Asterism: Pegasus and dispel4py hybrid workflows for data-intensive science*, in 7th International Workshop on Data-Intensive Computing in the Clouds (DataCloud), 2016, pp. 1-8.
26. D. Krol, R. Ferreira da Silva, E. Deelman, and V. E. Lynch, *Workflow Performance Profiles: Development and Analysis*, in Euro-Par 2014: Parallel Processing Workshops, 2016.
27. R. Ferreira da Silva, E. Deelman, R. Filgueira, K. Vahi, M. Rynge, R. Mayani, and B. Mayer, *Automating Environmental Computing Applications with Scientific Workflows*, in Environmental Computing Workshop (ECW), 2016.
28. D. Krol, R. Ferreira da Silva, E. Deelman, and V. E. Lynch, *Science Automation in Practice: Performance Data Farming in Workflows*, in Euro-Par 2014: Parallel Processing Workshops, 2016.
29. S. Schlagkamp, R. Ferreira da Silva, W. Allcock, E. Deelman, and U. Schwiegelshohn, *Consecutive Job Submission Behavior at Mira Supercomputer*, in 25th ACM International Symposium on High-Performance Parallel and Distributed Computing (HPDC), 2016.
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