

FERNANDO CHIRIGATI

CURRICULUM VITÆ

CONTACT INFORMATION

Springer Nature
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EDUCATION

- Jan 2012 - Aug 2018 **Ph.D., Computer Science**, *NYU Tandon School of Engineering, Brooklyn – USA.*
Advisor: Juliana Freire, Ph.D.
- Jan 2007 - Dec 2011 **B.E., Computer and Information Engineering**, *Federal University of Rio de Janeiro, Rio de Janeiro – Brazil.*
Advisor: Marta Mattoso, D.Sc.
- Aug 2010 - Dec 2010 **One-Semester Exchange Program**, *University of Central Florida, Orlando – USA.*
Scholarship granted by the Brazilian government.

RESEARCH INTERESTS

Data Management ◦ Data Mining ◦ Data Science ◦ Large-Scale Data Analytics
Provenance Management and Analytics ◦ Reproducibility ◦ Data Visualization

PROFESSIONAL EXPERIENCE

Research project details can be found on the next page.

- Feb 2020 - Present **Chief Editor**
Nature Computational Science
Springer Nature
- Oct 2018 - Feb 2020 **Postdoctoral Research Associate**
Computer Science and Engineering Department
NYU Tandon School of Engineering, Brooklyn – USA
NYU Center for Data Science, New York – USA
Research Projects: *Streamlining Model Design, Comparison, and Curation; Reproducibility in Science; Saving Data Journalism*
- Jan 2012 - Aug 2018 **Research Assistant**
NYU Tandon School of Engineering, Brooklyn – USA
Supervisor: Juliana Freire
Research Projects: *Urban Data Management and Analytics; Reproducibility in Science*

- May 2016 – Aug 2016 **Summer Research Intern**
New York Structured Data Research Group
Google Research, New York City – USA
Supervisors: Flip Korn and Cong Yu
Research Project: *Understanding Tables on the Web through Automatic Visualizations*
- May 2015 – Aug 2015 **Summer Research Intern**
New York Structured Data Research Group
Google Research, New York City – USA
Supervisors: Flip Korn and Cong Yu
Research Project: *Enhancing Search Results with Knowledge Carousels*
- Jun 2013 – Aug 2013 **Summer Research Intern**
IBM T. J. Watson Research Center, Yorktown Heights – USA
Supervisors: Jérôme Siméon and Martin Hirzel
Research Project: *Bridging the Gap between Big and Fast Data*
- Jan 2009 – Feb 2009 **Research Intern**
University of Utah, Salt Lake City – USA
Supervisors: Juliana Freire and Cláudio T. Silva
Research Project: *Development of Control-Flow Structures for VisTrails*
- Aug 2007 – Aug 2010 **Research Assistant**
Federal University of Rio de Janeiro, Rio de Janeiro – Brazil
Supervisor: Marta Mattoso
Research Projects: *Data Provenance in Scientific Experiments; Management of Large-Scale Scientific Experiments*

RESEARCH PROJECTS

Oct 2018 – Present **Streamlining Model Design, Comparison, and Curation**

NYU Tandon School of Engineering, Brooklyn – USA

Description: Understanding the complex and increasingly data-intensive world around us relies on the construction of robust empirical models, i.e., representations of real, complex systems that enable decision makers to predict behaviors and answer “what-if” questions. Today, construction of complex empirical models is largely a manual process requiring a team of subject matter experts and data scientists. With ever more data becoming available via improved sensing and open sources, the opportunity exists to build models to speed scientific discovery, enhance Department of Defense/Intelligence Community’s intelligence, and improve United States Government logistics and workforce management, but capitalizing on this opportunity is fundamentally limited by the availability of data scientists. This project aims to develop automated model discovery systems that enable users with subject matter expertise but no data science background to create empirical models of real, complex processes. This capability will enable subject matter experts to create empirical models without the need for data scientists, and will increase the productivity of expert data scientists via automation. In the context of this project, we are also interested in how to streamline data augmentation, i.e., how to efficiently find relevant datasets from the Web that can be used to complement the input data of an existing machine learning pipeline to improve the model performance and accuracy.

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- Jan 2012 – Present **Reproducibility in Science**
NYU Tandon School of Engineering, Brooklyn – USA
Description: While reproducibility is a core component of the scientific process, science falls far short of reproducible results. Most computational experiments are specified only informally in papers, where experimental results are briefly described in figure captions; the code that produced the results is seldom available; and configuration parameters change results in unforeseen ways. This project is focused on developing a suite of tools and infrastructure that supports the process of sharing, testing, and re-using scientific experiments and results. In particular, the goal is to assist researchers in streamlining their research process to make their data interoperable and reproducible. ReproZip and noWorkflow are examples of outcomes of the project.
- May 2018 – Apr 2019 **Saving Data Journalism: A Prototype to Enable Systematic Collection & Preservation of Dynamic News Websites**
NYU Division of Libraries, New York – USA
Description: Storytelling with data has revolutionized modern reporting, and the dramatic increase in the production and popularity of data journalism projects can be seen both at news startups such as FiveThirtyEight and Vox.com, as well as at legacy news organizations like The New York Times, The Washington Post, and The Wall Street Journal. These stories are an important part of the historical record, yet due to their technological complexity, they cannot currently be archived or preserved at libraries, newsrooms, or cultural institutions. As such, they are disappearing. In this project, we propose a prototype to capture one type of data journalism artifact known as “news app” (which are based on dynamic websites) through emulation, which will add to an existing open source computational reproducibility tool, ReproZip. The extension will be designed to quickly and easily pack and unpack dynamic websites, enabling the first large-scale collection, preservation, and discovery of these objects.
- Aug 2014 – Sep 2018 **Urban Data Management and Analytics**
NYU Tandon School of Engineering, Brooklyn – USA
Description: Discovering relationships between spatio-temporal urban datasets can lead to insights and allow for a better understanding of how the city behaves. Given the sheer number and size of the data sets, and the diverse spatial and temporal scales at which the data is available, this task presents computational challenges on all fronts, from indexing and querying to analyzing the relationships. Also, it is non-trivial to differentiate between meaningful and spurious relationships. This project takes a first step towards addressing these challenges and proposing a solution that is scalable and effective at identifying potentially meaningful relationships.
- May 2016 – Aug 2016 **Understanding Tables on the Web through Automatic Visualizations**
Google Research, New York City – USA
Description: Tables on the Web, also known as WebTables, are a valuable source of information since they are mostly human-curated, thus representing concepts and facts that are interesting to users in a tabular, semi-structured format. The goal of this project is to use this data to automatically generate visualizations, or charts, that give insightful summaries of the table content and pinpoint interesting facts for users. Different challenges need to be addressed in this project, including providing and using intelligent table annotations to make better sense of the semi-structured data, and ranking the generated charts.

- May 2015 – Aug 2015 **Enhancing Search Results with Knowledge Carousels**
Google Research, New York City – USA
Description: The increasing popularity of mobile device usage has ushered in many features in modern search engines that help users with various information needs. One of those needs is knowledge exploration, where related documents are returned in response to a user query, either directly through right-hand side knowledge panels or indirectly through navigable sections underneath individual search results. Existing knowledge exploration features have relied on a combination of Knowledge Bases and query logs. In this project, the goal is to generate knowledge carousels to facilitate knowledge exploration with regard to an entity-seeking query, based on leveraging the large corpus of tables on the Web. This brings many technical challenges, including associating correct carousels with the search entity, selecting the best carousel from the candidates, and finding titles that best describe the carousel.
- Jun 2013 – Aug 2013 **Bridging the Gap between Big and Fast Data**
IBM T. J. Watson Research Center, Yorktown Heights – USA
Description: Increasingly, applications that deal with big data need to run analytics concurrently with updates. But bridging the gap between big and fast data is challenging: most of these applications require analytics' results that are fresh and consistent, but without impacting system latency and throughput. The focus of this project is on designing algorithms and data structures to enable consistent analytics without blocking incoming updates in NoSQL stores.
- Jul 2009 – Aug 2010 **Management of Large-Scale Scientific Experiments**
Federal University of Rio de Janeiro, Rio de Janeiro – Brazil
Description: Many different scientific areas, including deep-sea oil exploitation and bioinformatics, require simulating large-scale experiments. These simulations must be designed efficiently to avoid the overconsumption of computational resources, as this can become incredibly expensive. In this project, the focus is on building tools to design scientific workflows for such simulations, from its conception to its execution and provenance analysis. The use of provenance data is key in this project: by analyzing ongoing and past executions, previous results can be re-used, thus avoiding expensive, redundant computations.
- Jan 2009 – Feb 2009 **Development of Control-Flow Structures for VisTrails**
University of Utah, Salt Lake City – USA
Description: While scientific workflows are mostly data-oriented, often represented as directed acyclic graphs, control-flow structures are sometimes required to specify how the data flow should be directed. The goal of this project is to add such control-flow structures to the workflow system VisTrails.
- Aug 2007 – Jul 2009 **Data Provenance in Scientific Experiments**
Federal University of Rio de Janeiro, Rio de Janeiro – Brazil
Description: As the amount of data becomes massive and the nature of the scientific workflows becomes more heterogeneous, with data and tasks located in a distributed manner, the need for integrating provenance from the different experiment steps becomes more evident. The goal of this project is to propose efficient solutions, developed in scientific workflow systems, to store and analyze such provenance data, while integrating the different pieces into a single queryable store.

AWARDS AND HONORS

- Invitation **7th Heidelberg Laureate Forum**
Only the 200 most qualified young researchers are given the opportunity to attend the Heidelberg Laureate Forum, an event where young researchers can personally meet the winners of the most prestigious prizes in Computer Science and Mathematics.
Selected for the *10 out of 200 series*: <http://bit.ly/scilogs>
2019
- Honorable Mention **Best Demonstration – SIGMOD 2017**
Querying and Exploring Polygamous Relationships in Urban Spatio-Temporal Data Sets
2017
- Award **Most Reproducible Paper – SIGMOD 2017**
Data Polygamy: The Many-Many Relationships among Urban Spatio-Temporal Data Sets
2017
- Award **Student Travel Award – SIGMOD 2017**
2017
- Award **Pearl Brownstein Doctoral Research Award – NYU Tandon**
Doctoral research that shows the greatest promise.
2016
- 2nd Place **Programming Contest – SIGMOD 2014**
Together with Tuan-Anh Hoang-Vu, Kien Pham, and Huy T. Vo.
2014
- Award **Deborah Rosenthal, MD Award – NYU Tandon**
Outstanding performance on the Ph.D. qualifying examination.
2014
- Honorable Mention **A3P Special Honor – Federal University of Rio de Janeiro**
Outstanding performance achieved at the Federal University of Rio de Janeiro, given by the Alumni Association of the Polytechnic School (A3P).
2013
- Honorable Mention **Magna Cum Laude Honor – Federal University of Rio de Janeiro**
Outstanding performance achieved in Computer and Information Engineering.
2013
- Honorable Mention **Research Honor – Federal University of Rio de Janeiro**
Given by the Academic Deliberative Council of Graduate Department of Engineering (COPPE).
2010
- Award **Best Poster – XXIV Brazilian Symposium on Databases**
Development of Explicit Control Structures for SWfMS VisTrails (in Portuguese)
2009

Honorable Mention **Best Presentation – Federal University of Rio de Janeiro**
Top 10 presentations among more than 500 presentations, during the XXXI Conference on Young Research Assistant.
2010

PUBLICATIONS

JOURNALS

- 2018 *Provenance and the Different Flavors of Computational Reproducibility*, J. Freire and **F. Chirigati**. In *IEEE Data Engineering Bulletin*, 41(1), pp. 15-26, 2018
- 2017 *Using ReproZip for Reproducibility and Library Services*, V. Steeves, R. Rampin, and **F. Chirigati**. In *IASSIST Quarterly*, 42(1), pp. 1-14, 2017
- 2016 *ReproZip: The Reproducibility Packer*, R. Rampin, **F. Chirigati**, D. Shasha, J. Freire, and V. Steeves. In *Journal of Open Source Software (JOSS)*, 2016
Link to code: <https://github.com/ViDA-NYU/reprozip/>
- Knowledge Exploration Using Tables on the Web*, **F. Chirigati**, J. Liu, F. Korn, Y. Wu, C. Yu, and H. Zhang. In *Proceedings of the VLDB Endowment (PVLDB)*, 10(3), pp. 193-204, 2016
- Exploring What not to Clean in Urban Data: A Study Using New York City Taxi Trips*, J. Freire, A. Bessa, **F. Chirigati**, H. T. Vo, and K. Zhao. In *IEEE Data Engineering Bulletin*, 39(2), pp. 63-77, 2016
- 2015 *YesWorkflow: A User-Oriented, Language-Independent Tool for Recovering Workflow Information from Scripts*, T. McPhillips, T. Song, T. Kolisnik, S. Aulenbach, K. Belhajjame, R. Kyle Bocinsky, Y. Cao, J. Cheney, **F. Chirigati**, S. Dey, J. Freire, C. Jones, J. Hanken, K. W. Kintigh, T. A. Kohler, D. Koop, J. A. Macklin, P. Missier, M. Schildhauer, C. Schwalm, Y. Wei, M. Bieda, B. Ludäscher. In *International Journal of Digital Curation (IJDC)*, 10(1), pp. 298-313, 2015
- 2014 *The More the Merrier: Efficient Multi-Source Graph Traversal*, M. Then, M. Kaufmann, **F. Chirigati**, T. Hoang-Vu, K. Pham, A. Kemper, T. Neumann, and H. T. Vo. In *Proceedings of the VLDB Endowment (PVLDB)*, 8(4), pp. 449-460, 2014
Link to code: <https://github.com/mtodat/ms-bfs/>
- The PBase Scientific Workflow Provenance Repository*, V. Cuevas-Vicenttín, P. Kianmajd, B. Ludäscher, P. Missier, **F. Chirigati**, Y. Wei, D. Koop, and S. Dey. In *International Journal of Digital Curation (IJDC)*, 9(2), pp. 28-38, 2014
- 2013 *A Computational Reproducibility Benchmark*, **F. Chirigati**, M. Troyer, D. Shasha, and J. Freire. In *IEEE Data Engineering Bulletin*, 36(4), pp. 54-59, 2013
- Chiron: A Parallel Engine for Algebraic Scientific Workflows*, E. Ogasawara, J. Dias, V. Souza, **F. Chirigati**, D. Oliveira, F. Porto, P. Valduriez, and M. Mattoso. In *Journal of Concurrency and Computation: Practice and Experience*, 25(16), pp. 2327-2341, 2013
- 2011 *Similarity-Based Workflow Clustering*, V. Souza, **F. Chirigati**, K. Maia, E. Ogasawara, D. Oliveira, V. Braganholo, L. Murta, and M. Mattoso. In *Journal of Computational Interdisciplinary Sciences*, vol. 2, pp. 23-35, 2011

CONFERENCES AND WORKSHOPS

- 2019 *Understanding Spatio-Temporal Urban Processes*, L. Rocha, A. Bessa, **F. Chirigati**, E. OFriel, M. Moro, and J. Freire. In IEEE International Conference on Big Data (**IEEE BigData**), 2019
- Saving Data Journalism: Using ReproZip-Web to Capture Dynamic Websites for Future Reuse*, K. Boss, V. Steeves, R. Rampin, **F. Chirigati**, and B. Hoffman. In LIS Scholarship Archive, doi:10.31229/osf.io/khtdr, 2019
- 2017 *Querying and Exploring Polygamous Relationships in Urban Spatio-Temporal Data Sets*, Y. Chan, **F. Chirigati**, H. Doraiswamy, C. Silva, and J. Freire. In Proceedings of the 2017 ACM SIGMOD International Conference on Management of Data (**SIGMOD**), pp. 1643-1646, 2017
Honorable Mention, SIGMOD Best Demonstration Award
- 2016 *Data Polygamy: The Many-Many Relationships among Urban Spatio-Temporal Data Sets*, **F. Chirigati**, H. Doraiswamy, T. Damoulas, and J. Freire. In Proceedings of the 2016 ACM SIGMOD International Conference on Management of Data (**SIGMOD**), pp. 1011-1025, 2016
Link to code: <https://github.com/ViDA-NYU/data-polygamy/>
SIGMOD Most Reproducible Paper Award
- ReproZip: Computational Reproducibility With Ease*, **F. Chirigati**, R. Rampin, D. Shasha, and J. Freire. In Proceedings of the 2016 ACM SIGMOD International Conference on Management of Data (**SIGMOD**), pp. 2085-2088, 2016
Link to code: <https://github.com/ViDA-NYU/reprozip/>
- Virtual Lightweight Snapshots for Consistent Analytics in NoSQL Stores*, **F. Chirigati**, J. Siméon, M. Hirzel, and J. Freire. In Proceedings of the 32nd International Conference on Data Engineering (**ICDE**), pp. 1310-1321, 2016
Link to code: <https://github.com/ViDA-NYU/mongodb-vls/>
- 2015 *noWorkflow: Capturing and Analyzing Provenance of Scripts*, L. Murta, V. Braganholo, **F. Chirigati**, D. Koop, and J. Freire. In Provenance and Annotation of Data and Processes, vol. 8628, Lecture Notes in Computer Science (**LNCS**), pp. 71-83, Springer International Publishing, 2015
Link to code: <https://github.com/gems-uff/noworkflow/>
- 2013 *Packing Experiments for Sharing and Publication*, **F. Chirigati**, D. Shasha, and J. Freire. In Proceedings of the 2013 International Conference on Management of Data (**SIGMOD**), pp. 977-980, 2013
Link to code: <https://github.com/ViDA-NYU/reprozip/>
- ReproZip: Using Provenance to Support Computational Reproducibility*, **F. Chirigati**, D. Shasha, and J. Freire. In Proceedings of the 5th USENIX Conference on Theory and Practice of Provenance (**TaPP**), 2013
- VisTrails Provenance Traces for Benchmarking*, **F. Chirigati**, D. Koop, J. Freire, and C. Silva. In Proceedings of the 2013 Joint **EDBT/ICDT** Workshops, pp. 323-324, 2013
- 2012 *Towards Integrating Workflow and Database Provenance*, **F. Chirigati** and J. Freire. In Provenance and Annotation of Data and Processes, vol. 7525, Lecture Notes in Computer Science (**LNCS**), pp. 11-23, Springer Berlin / Heidelberg, 2012

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Evaluating Parameter Sweep Workflows in High Performance Computing, **F. Chirigati**, V. Souza, E. Ogasawara, D. Oliveira, J. Dias, F. Porto, P. Valduriez, and M. Mattoso. In Proceedings of the 1st International Workshop on Scalable Workflow Enactment Engines and Technologies (**SWEET**), article 2, 2012

2011 *An Evaluation of the Distribution of Dynamic and Static Activities in Parallel Environments using Hydra*, V. Souza, **F. Chirigati**, E. Ogasawara, J. Dias, D. Oliveira, F. Porto, P. Valduriez, and M. Mattoso. In Proceedings of the XXXI Congress of the Brazilian Computer Society, 2011
In Portuguese

2010 *SimiFlow: An Architecture for Clustering Workflows by Similarity*, V. Souza, **F. Chirigati**, K. Maia, E. Ogasawara, D. Oliveira, V. Braganholo, L. Murta, and M. Mattoso. In Proceedings of the XXX Congress of the Brazilian Computer Society, 2010
In Portuguese

GExpLine: A Tool for Supporting Experiment Composition, D. Oliveira, E. Ogasawara, **F. Chirigati**, V. Souza, L. Murta, and M. Mattoso. In Provenance and Annotation of Data and Processes, vol. 6378, Lecture Notes in Computer Science (LNCS), pp. 251-259, Springer Berlin / Heidelberg, 2010

2009 *A Semantic Approach for Scientific Experiment Lines using Ontologies*, D. Oliveira, E. Ogasawara, **F. Chirigati**, V. Souza, L. Murta, C. Werner, and M. Mattoso. In Proceedings of the III e-Science Workshop, XXIV Brazilian Symposium on Databases, 2009
In Portuguese

Scientific Workflow Management System Applied to Uncertainty Quantification in Large Eddy Simulation, G. Guerra, F. Rochinha, R. Elias, A. Coutinho, V. Braganholo, D. Oliveira, E. Ogasawara, **F. Chirigati**, and M. Mattoso. In Proceedings of the 30th Iberian-Latin-American Congress on Computational Methods in Engineering (CILAMCE), 2009

Exploring Many Task Computing in Scientific Workflows, E. Ogasawara, D. Oliveira, **F. Chirigati**, C. E. Barbosa, R. Elias, V. Braganholo, A. Coutinho, and M. Mattoso. In Proceedings of the 2nd Workshop on Many-Task Computing on Grids and Supercomputers, International Conference for High Performance, Networking, Storage and Analysis (SC), 2009

2008 *Expliciting Control Flow in Scientific Workflows*, S. M. S. Cruz, **F. Chirigati**, R. Dahis, M. L. M. Campos, and M. Mattoso. In Proceeding of the II e-Science Workshop, XXIII Brazilian Symposium on Databases, 2008

Using Explicit Control Processes in Distributed Workflows to Gather Provenance, S. M. S. Cruz, **F. Chirigati**, R. Dahis, M. L. M. Campos, and M. Mattoso. In Provenance and Annotation of Data and Processes, vol. 5272, Lecture Notes in Computer Science (LNCS), pp. 186-199, Springer Berlin / Heidelberg, 2008

BOOK CHAPTERS

2017 *Glossary*, A. Rokem and **F. Chirigati**. In J. Kitzes, D. Turek, and F. Deniz (Eds.), *The Practice of Reproducible Research: Case Studies and Lessons from the Data-Intensive Sciences*, 2017

Provenance and Reproducibility, **F. Chirigati** and J. Freire. In L. Liu and M. T. Özsu (Eds.), *Encyclopedia of Database Systems*, 2017

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- 2014 *Reproducibility Using VisTrails*, J. Freire, D. Koop, **F. Chirigati**, and C. Silva. In V. Stodden, F. Leisch, and R. Peng (Eds.), *Implementing Reproducible Research (The R Series)*, 2014

EDITORIALS

- 2016 *A Collaborative Approach to Computational Reproducibility*, **F. Chirigati**, R. Capone, R. Rampin, J. Freire, and D. Shasha. In *Information Systems*, vol. 59, pp. 95-97, 2016

POSTERS

- 2016 *Enhancing Scholarly Communication with ReProZip*, **F. Chirigati**, R. Rampin, V. Steeves, D. Shasha, and J. Freire. FORCE2016 Conference, 2016
- 2014 *Constructing a Social Network Analysis System for SIGMOD 2014 Programming Contest*, **F. Chirigati**, K. Pham, T. Hoang-Vu, and H. T. Vo. SIGMOD 2014 Programming Contest, 2014
- Provenance Storage, Querying, and Visualization in PBase*, V. Cuevas-Vicenttín, P. Kianmajid, B. Ludäscher, P. Missier, **F. Chirigati**, Y. Wei, D. Koop, and S. Dey. In *Proceedings of the International Provenance and Annotation Workshop (IPAW)*, 2014
- 2013 *ReProZip: Packing Experiments for Sharing and Publication*, **F. Chirigati**, D. Shasha, and J. Freire. Beyond the PDF 2 Conference, 2013
- 2009 *Procedure to Build Scientific Workflows*, M. P. Rodrigues, J. C. C. Fernandez, **F. Chirigati**, S. M. S. Cruz, and M. C. R. Cavalcanti. XXIV Brazilian Symposium on Databases, 2009
In Portuguese
- Development of Explicit Control Structures for VisTrails*, **F. Chirigati**, R. Dahis, S. M. S. Cruz, J. Freire, C. Silva, and M. Mattoso. XXIV Brazilian Symposium on Databases, 2009
Best Poster Award
In Portuguese
- A Conception Process for Abstract Workflows: An Example on Deep Water Oil Exploitation Domain*, W. Martinho, E. Ogasawara, D. Oliveira, **F. Chirigati**, F. Correa, B. Jacob, I. Santos, G. H. Travassos, and M. Mattoso. 5th IEEE International Conference on e-Science, 2009

REPRODUCIBILITY PAPERS

- 2017 *HESML: A Scalable Ontology-based Semantic Similarity Measures Library with a Set of Reproducible Experiments and a Replication Dataset*, J. Lastra-Díaz, A. García-Serrano, M. Batet, M. Fernández, and **F. Chirigati**. In *Information Systems*, vol. 66, pp. 97-118, 2017
- 2016 *Reproducible Experiments on Dynamic Resource Allocation in Cloud Data Centers*, A. Wolke, M. Bichler, **F. Chirigati**, and V. Steeves. In *Information Systems*, vol. 59, pp. 98-101, 2016

OTHERS

- 2018 *ReproServer: Making Reproducibility Easier and Less Intrusive*, R. Rampin, **F. Chirigati**, V. Steeves, and J. Freire. In arXiv, arXiv:1808.01406, 2018

PRESENTATIONS

- 2019 **Auctus: A Dataset Search Engine for Data Augmentation**
Artificial Intelligence for Data Discovery and Reuse (AIDR)
Pittsburgh, USA, 2019
- 2017 **Data Polygamy: The Many-Many Relationships among Urban Spatio-Temporal Data Sets**
Invited Talk at University of Münster
Münster, Germany, 2017
- Preserving and Reproducing Research with ReProZip**
Invited Talk at Brainhack NYC
New York City, USA, 2017
- 2016 **Data Polygamy: The Many-Many Relationships among Urban Spatio-Temporal Data Sets**
AWS re:Invent 2016
Las Vegas, USA, 2016
- Preserving and Reproducing Research with ReProZip**
Preservation and Archiving Special Interest Group (PASIG), Fall 2016 Meeting
New York City, USA, 2016
- Data Polygamy: The Many-Many Relationships among Urban Spatio-Temporal Data Sets**
International Conference on Management of Data (SIGMOD)
San Francisco, USA, 2016
- Virtual Lightweight Snapshots for Consistent Analytics in NoSQL Stores**
32nd International Conference on Data Engineering (ICDE)
Helsinki, Finland, 2016
- ReProZip: Computational Reproducibility with Ease**
Dagstuhl Seminar 16041, Reproducibility of Data-Oriented Experiments in e-Science
Wadern, Germany, 2016
- 2015 **Achieving Reproducibility with ReProZip**
Invited talk at the CS Colloquium, Columbia University
New York City, USA, 2015
- Facilitating Reproducibility After the Fact**
BIDS Reproducibility Conference, University of California, Berkeley
Berkeley, USA, 2015
- Facilitating Reproducibility After the Fact**
Reproducibility Seminar, eScience Institute, University of Washington
Seattle, USA, 2015

- 2014 **Constructing a Social Network Analysis System for SIGMOD 2014 Programming Contest**
SIGMOD Programming Contest
Snowbird, USA, 2014
- 2013 **ReproZip: Packing Experiments for Sharing and Publication**
Workshop on Software Infrastructure for Reproducibility in Science
Brooklyn, USA, 2013
- ReproZip: Packing Experiments for Sharing and Publication**
Beyond the PDF 2 Conference – Visions of the Future Session
Amsterdam, Netherlands, 2013
- 2012 **ReproZip: Packing Experiments for Sharing and Publication**
ICERM Workshop on Reproducibility in Computational and Experimental Mathematics
Providence, USA, 2012
- Towards Integrating Workflow and Database Provenance**
4th International Provenance and Annotation Workshop (IPAW)
Santa Barbara, USA, 2012
- Evaluating Parameter Sweep Workflows in High Performance Computing**
1st International Workshop on Scalable Workflow Enactment Engines and Technologies (SWEET)
Scottsdale, USA, 2012

PROFESSIONAL ACTIVITIES

- 2019 – Present **Working Group Member**
NISO Project: Badging Scheme for Reproducibility in the Computational and Computing Sciences
- 2020 **Program Committee Member**
International Provenance and Annotation Workshop (IPAW), 2020
- 2015 – 2019 **Reproducibility Editor**
Information Systems Journal, Elsevier North-Holland
- 2019 **Program Committee Chair – Data Science Track**
International Conference on Computer Systems and Applications (AICCSA), 2019
- Program Committee Member**
International Workshop on Practical Reproducible Evaluation of Computer Systems (P-RECS), 2019
- 2018 **Program Committee Member – Research Track**
Very Large Data Bases (VLDB) Conference, 2018
- Program Committee Member – Demo Track**
ACM International Conference on Management of Data (SIGMOD), 2018
- 2017 **Program Committee Member**
SciPy Conference, 2017

- 2016 **Reproducibility Committee Member**
ACM International Conference on Management of Data (SIGMOD), 2016
- Artifact Evaluation Committee Member**
European Conference on Object-Oriented Programming (ECOOP), 2016
- 2012 – 2015 **Working Group Member**
DataONE Scientific Workflows and Provenance Working Group
- 2015 **Reproducibility Committee Member**
ACM International Conference on Management of Data (SIGMOD), 2015
- Artifact Evaluation Committee Member**
European Conference on Object-Oriented Programming (ECOOP), 2015
- 2013 **Student Volunteer**
ACM International Conference on Management of Data (SIGMOD), 2013
- Co-Organizer**
Workshop on Software Infrastructure for Reproducibility in Science, Brooklyn, USA, 2013
- Co-Organizer**
Workshop on Reproducibility in Science, Brooklyn, USA, 2013

FREELY-AVAILABLE SOFTWARE SYSTEMS

Auctus

<https://gitlab.com/ViDA-NYU/datamart/datamart>

Auctus (or DataMart) is a dataset search engine tailored for data augmentation tasks in machine learning pipelines.

Data Polygamy

<https://github.com/ViDA-NYU/data-polygamy/>

Data Polygamy is a scalable topology-based framework that allows users to query for statistically significant relationships between spatio-temporal datasets.

ReproZip

<https://www.reprozip.org/>

ReproZip is a tool that automatically captures provenance of experiments and packs all the necessary files, library dependencies, and variables to reproduce the results. Reviewers can then unpack and run the experiments without having to install any additional software.

noWorkflow

<http://gems-uff.github.io/noworkflow/>

noWorkflow is a tool that can transparently capture detailed provenance information from Python scripts. It is non-intrusive, does not require users to change the way they work, and provides different ways to analyze the captured provenance.