

Ruby Tahboub

TEACHING ASSISTANT PROFESSOR

Department of Computer Science University of Illinois at Urbana-Champaign

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“Our greatest weakness lies in giving up. The most certain way to succeed is always to try just one more time.” —Thomas A. Edison

Education

Purdue University

DOCTOR OF PHILOSOPHY, COMPUTER SCIENCE

- Dissertation: Architecting Compilers for Diverse Workloads
- Advisor: Tiark Rompf

West Lafayette, IN, USA

May 2019

Purdue University

M.S. COMPUTER SCIENCE

West Lafayette, IN, USA

August 2016

Employment

University of Illinois at Urbana-Champaign

TEACHING ASSISTANT PROFESSOR

Urbana-Champaign, IL, USA

August 2022 - current

Purdue University

VISITING ASSISTANT PROFESSOR

West Lafayette, IN, USA

May 2019 - August 2022

Teaching Interests

I am passionate about teaching and making the learning process more effective and equitable. As an educator, I aim to help students construct the link between abstract concepts and practice while minimizing the cognitive load. I teach introductory programming, data management, and knowledge discovery.

Research Interests

My research interests lie in the overlapping areas of Computing, Education, and Psychology. I explore applying learning theories in course design and find sustainable ways to implement active learning in upper-level classes.

Teaching Experience

University of Illinois at Urbana-Champaign

- CS 101 Introduction to Programming: Engineering and Science [Fall 2022, Spring 2023]
- Introduction to Data Mining [Fall 2023, Spring 2024]

Purdue University

- CS 15900 - C Programming [Fall 2020, Spring 2021]
- CS 17700 Programming With Multimedia Objects [Fall 2021, Spring 2022, Summer 2022]
- CS 34800 Information Systems [Fall 2019, Spring 2020]
- CS 38003 Python Programming [Summer 2019, Fall 2019, Spring 2020, Fall 2020, Spring 2021, Spring 2022]
- Data Engineering I [Fall 2020, Spring 2021, Spring 2022]
- Data Engineering II [Spring 2021]

Conference Publications

[1] Grégory M. Essertel, **Ruby Y. Tahboub**, Tiark Rompf. *On-Stack Replacement for Program Generators and Source-to-Source Compilers*, International Conference on Generative Programming: Concepts and Experiences (GPCE) 2021

[2] **Ruby Y. Tahboub**, Tiark Rompf. *Architecting a Query Compiler for Spatial Workloads*, International Conference on Management of Data (SIGMOD) 2020.

[3] Grégory M. Essertel, **Ruby Y. Tahboub**, Fei Wang, James Decker, Tiark Rompf. *Flare & Lantern: Efficiently Swapping Horses Midstream*, Very Large Data Bases Conference (VLDB) 2019.

[4] **Ruby Y. Tahboub**, Xilun Wu, Grégory M. Essertel, Tiark Rompf. *Towards Compiling Graph Queries in Relational Engines*, International Symposium on Database Programming Languages (DBPL) 2019.

[5] Grégory M. Essertel, **Ruby Y. Tahboub**, James Decker, Kevin Brown, Kunle Olukotun, Tiark Rompf. *Flare: Whole Query Compilation for Apache Spark*, USENIX Symposium on Operating Systems Design and Implementation (OSDI) 2018.

[6] **Ruby Y. Tahboub**, Grégory M. Essertel, Tiark Rompf. *How to Architect a Query Compiler, Revisited*, International Conference on Management of Data (SIGMOD) 2018.

[7] **Ruby Y. Tahboub**, Tiark Rompf. *On Supporting Compilation in Spatial Query Engines*. ACM SIGSPATIAL GIS 2016.

[8] Mingjie Tang, **Ruby Y. Tahboub**, Walid G. Aref, Mikhail J. Atallah, Qutaibah M. Malluhi, Mourad Ouzzani and Yasin N. Silva. *Similarity Group-by Operators for Multi-dimensional Relational Data*. IEEE International Conference on Data Engineering (ICDE) Extended Abstract 2016.

[9] **Ruby Y. Tahboub**, Jaewoo Shin, Aya Abdelsalam, Jalal Aref, Walid G. Aref and Sunil Prabhakar. *LIMO: Learning Programming using Interactive Map Activities*. ACM International Conference on Advances in Geographic Information Systems (SIGSPATIAL GIS) 2015.

[10] Walid G. Aref, Sunil Prabhakar, Jaewoo Shin, **Ruby Y. Tahboub**, Aya Abdelsalam and Jalal Aref. *On Map-Centric Programming Environments*. ACM International Conference on Advances in Geographic Information Systems (SIGSPATIAL GIS) 2015.

[11] Basel A. Mahafza, Sami I. Serhan, **Ruby Y. Tahboub**, *All-Reduce Communication Operation in OTIS-Mesh Interconnection Network*. Advances in Software Engineering and Systems (SEPADS) 2015.

Refereed Journal Publications

[1] Mingjie Tang, **Ruby Y. Tahboub**, Walid G. Aref, Mikhail J. Atallah, Qutaibah M. Malluhi, Mourad Ouzzani and Yasin N. Silva. *Similarity Group-by Operators for Multi-dimensional Relational Data*, IEEE Transactions on Knowledge and Data Engineering (TKDE) 2016.

[2] Basel Y. Mahafzah, **Ruby Y. Tahboub** and Omar Y. Tahboub, *Efficient Broadcast and Global Combine in All-Port Wormhole-Routed OTIS-Mesh Interconnection Networks*, Cluster Computing: The Journal of Networks, Software Tools and Applications. Vol 13, Issue 1, Mar 2010.

Conference Talks and Meetings

ARCHITECTING A QUERY COMPILER FOR SPATIAL WORKLOADS.

June 2020 International Conference on Data Management (SIGMOD), Virtual.

ARCHITECTING QUERY COMPILERS FOR DIVERSE WORKLOADS.

Sep 2019 Midwest Programming Languages Summit (MWPLS), Purdue University, West Lafayette, Indiana

TOWARDS COMPILING GRAPH QUERIES IN RELATIONAL ENGINES.

June 2019 International Symposium on Database Programming Languages (DBPL), Phoenix, Arizona

HOW TO ARCHITECT A QUERY COMPILER, REVISITED.

June 2018 International Conference on Data Management (SIGMOD), Houston, Texas.

ON SUPPORTING COMPILATION IN SPATIAL QUERY ENGINES: (VISION PAPER).

June 2016 International Conference on Advances in Geographic Information Systems (SIGSPATIAL), Burlingame, California.

Internal Service Activities

- Member of the Instructional Faculty Recruiting Committee.
- Member of the organizing committee of the 2024 Illinois Computer Science Teaching Workshop.

External Service Activities

PROGRAM COMMITTEE

- ACM SIGPLAN International Conference on Generative Programming: Concepts & Experiences (GPCE) 2023.
- Reactive and Event-Based Languages and Systems (REBLS) 2022.
- ACM SIGPLAN Scala Symposium, 2020.
- International Conference on Advanced Geographic Information Systems, Applications, and Services (GEOProcessing) 2017-2019.

WEB MASTER

- International Conference on Advances in Geographic Information Systems (ACM SIGSPATIAL). 2016-2017.

STUDENT VOLUNTEER

- SIGSPATIAL 2015-2017, SIGMOD 2017.

JOURNAL REVIEWER

- The VLDB Journal.

Awards

2016 **Excellence in Teaching**, The Raymond Boyce Graduate Teacher Award

Purdue University

2015 **Best Demo Award**, LIMO: Learning Programming using Interactive Map Activities.

ACM SIGSPATIAL

Professional Memberships

Member of ACM, IEEE, and Purdue's Women in Science.

Outreach

2013-2014 Mentor in More Active Girls in Computing.