

MAXIMILIAN SCHLEICH

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EMPLOYMENT

University of Washington

Seattle, WA, United States

Postdoctoral Scholar, Feb. 2020 - present

- Under supervision of Prof. Dan Suciu, generously funded by a RelationalAI fellowship.

RelationalAI

Berkeley, CA, United States

Research Intern, Analytics, Jun. - Sep. 2018

- Collaborated with RelationalAI scientists and several researchers from the faculty network to design, implement, and benchmark the integrated database and analytics engine that is built to support relational machine learning.

Global eProcure Limited (GEP)

London, United Kingdom

Associate Consultant, Feb. - Aug. 2014

- Full-time management consultant in the procurement industry.
- Carried out extensive collection and analysis of client spend data to identify saving opportunities. Achieved savings through eSourcing processes and competitive tenders.
- Conducted market research for reports and client presentations.

EDUCATION

University of Oxford

Oxford, United Kingdom

DPhil (PhD) in Computer Science, Oct. 2015 - Jan. 2020

- Under supervision of Prof. Dan Olteanu.
- Thesis: Structure-Aware Machine Learning over Multi-Relational Databases

University of Oxford

Oxford, United Kingdom

Master of Science (Distinction) in Computer Science, Oct. 2014 – Sept. 2015.

- Master Thesis: Learning Regression Models over Factorized Joins (Distinction, Grade: 94%)
- Average for Courses: 84%, Requirement for Distinction: 70%

The American University of Paris

Paris, France

Bachelor of Arts (Honors) in International Economics and Bachelor of Science (Honors) in Computational Mathematics, Jan. 2011 – Dec. 2013, summa cum laude (GPA: 3.9/4)

- Final Thesis: Population Decline and Family Policy in the OECD: A Panel Data Analysis with Application to Germany

PUBLICATIONS

(For theory papers, the list of authors is in alphabetical order.)

Journal Papers

Functional Aggregate Queries with Additive Inequalities.

Mahmoud Abo Khamis, Ryan R. Curtin, Benjamin Moseley, Hung Q. Ngo, XuanLong Nguyen, Dan Olteanu, and Maximilian Schleich. ACM Transactions on Database Systems (TODS), 45(4), pages 1-41, 2020. Invited as Best of PODS 2019. Link: [[arXiv](#)]

Learning Models over Relational Data using Sparse Tensors and Functional Dependencies.

Mahmoud Abo Khamis, Hung Q. Ngo, XuanLong Nguyen, Dan Olteanu, and Maximilian Schleich. ACM Transactions on Database Systems (TODS), 45(2), pages 1-66, 2020. Invited as Best of PODS 2018. Link: [[arXiv](#)]

Factorized Databases.

Dan Olteanu and Maximilian Schleich. SIGMOD Record (Database Principles Column), 45(2), pages 5–16, 2016. Link: [[pdf](#)]

Conference Papers

GeCo: Quality Counterfactual Explanations in Real Time.

Maximilian Schleich, Zixuan Geng, Yihong Zhang, Dan Suciu. arXiv report 2101.01292, 2020. Link: [[arXiv](#)]

On the Tractability of SHAP Explanations.

Guy Van den Broeck, Anton Lykov, Maximilian Schleich, Dan Suciu. In AAI 2021. arXiv report 2009.08634, 2020. Link: [[arXiv](#)]

Rk-means: Fast Clustering for Relational Data.

Ryan Curtin, Ben Moseley, Hung Q. Ngo, XuanLong Nguyen, Dan Olteanu, Maximilian Schleich. International Conference on Artificial Intelligence and Statistics (AISTATS), pages 2742-2752, 2020. Link: [[arXiv](#)]

Multi-Layer Optimizations for End-to-End Data Analytics.

Amir Shaikhha, Maximilian Schleich, Alexandru Ghita, and Dan Olteanu. Code Generation and Optimization (CGO), pages 145–157, 2020. Link: [[arXiv](#)]

Learning Models over Relational Data: A Brief Tutorial.

Maximilian Schleich, Dan Olteanu, Mahmoud Abo-Khamis, Hung Q. Ngo, and XuanLong Nguyen. Scalable Uncertainty Management (SUM), pages 423–432, 2019. Link [[arXiv](#)]

A Layered Aggregate Engine for Analytics Workloads.

Maximilian Schleich, Dan Olteanu, Mahmoud Abo Khamis, Hung Ngo, and XuanLong Nguyen. ACM SIGMOD, pages 1642–1659, 2019. Link: [[arXiv](#)]

On Functional Aggregate Queries with Additive Inequalities.

Mahmoud Abo Khamis, Ryan Curtin, Ben Moseley, Hung Ngo, XuanLong Nguyen, Dan Olteanu, and Maximilian Schleich. ACM PODS, pages 414–431, 2019. (Best of PODS 2019, Invited to ACM TODS). Link: [[arXiv](#)]

In-Database Learning with Sparse Tensors.

Mahmoud Abo Khamis, Hung Ngo, XuanLong Nguyen, Dan Olteanu, and Maximilian Schleich. ACM PODS, pages 325–340, 2018. (Best of PODS 2018, Invited to ACM TODS). Extended version: arXiv report 1703.04780. Link: [[arXiv](#)]

Learning Linear Regression Models over Factorized Joins.

Maximilian Schleich, Dan Olteanu, and Radu Ciucanu. ACM SIGMOD, pages 3-18, 2016. Link: [[updated version](#)]

Workshop Papers

Causality-based Explanation of Classification Outcomes.

Leopoldo Bertossi, Jordan Li, Maximilian Schleich, Dan Suciu, Zografoula Vagena. ACM SIGMOD DEEM Workshop, pages 1–10, 2020. Link: [[arXiv](#)]

AC/DC: In-Database Learning Thunderstruck.

Mahmoud Abo Khamis, Hung Ngo, XuanLong Nguyen, Dan Olteanu, and Maximilian Schleich. ACM SIGMOD DEEM Workshop, pages 1–10, 2018. Link: [[arXiv](#)]

In-Database Factorized Learning.

Hung Ngo, XuanLong Nguyen, Dan Olteanu, and Maximilian Schleich. Alberto Mendelzon Workshop, 2017. Link: [[pdf](#)]

Demonstration Papers

LMFAO: An engine for batches of group-by aggregates.

Maximilian Schleich and Dan Olteanu. PVLDB (Demo Track), 13(12), pages 2945-2948, 2020. Link: [[pdf](#)]

F: Regression Models over Factorized Views.

Dan Olteanu and Maximilian Schleich. PVLDB (Demo Track) 9(13), pages 1573–1576, 2016. Link: [[pdf](#)]

INVITED TALKS

Multi-Layer Optimizations for End-to-End Data Analytics: Presented at RelationalAI (April 2020)

Learning Models over Relational Data - A Brief Tutorial: Invited Tutorial at SUM, France, (December 2019)

A Layered Aggregate Engine for Analytics Workloads: Presented at the UW Affiliates Workshop 2019, University of Washington (July 2019)

Experiences with Implementing In-Database Machine Learning: Presented at RelationalAI Iceland Conference (July 2018)

In-Database Factorized Learning: Presented at Machine Learning Seminar, TU Darmstadt (November 2018)

Learning Linear Regression Models over Factorized Joins: Presented at the Information Systems Seminar, University of Oxford (December 2015), and the Vienna Center for Logic and Algorithms, TU Vienna (April 2016)

PROFESSIONAL SERVICE

- PVLDB, Program Committee, 2021/2022
- VLDB Journal, Program Committee for the Special Issue on Data Science for Responsible Data Management, 2021
- ACM PODS, Invited Reviewer, 2021
- AAI, Program Committee, 2021
- VLDBJ, Invited Reviewer, 2020
- PVLDB, Program Committee, 2019/2020
 - Recognized as a Distinguished PVLDB 2020 Review Board Member
- IEEE TKDE, Invited Reviewer, 2019
- ACM SIGMOD, External Reviewer, 2018
- ACM TKDD, Invited Reviewer, 2017

AWARDS AND HONORS

- Recipient: Distinguished PVLDB 2020 Review Board Member
- Invited to ACM TODS special issue of best papers at PODS 2019
- Invited to ACM TODS special issue of best papers at PODS 2018
- Recipient: ACM SIGMOD DEEM 2018 Student Travel Awards to attend SIGMOD and the DEEM workshop in Houston, June 2018
- Recipient: ACM SIGMOD travel grant to attend SIGMOD in San Francisco, June 2016
- Winner: The Hoare Prize for the best MSc Project in Computer Science at Oxford 2015
- Honorable Mention: International Student Awards for Outstanding Master Thesis from the Vienna Centre of Logic and Algorithms (VCLA), March 2016

- Winner: Outstanding Performance and Outstanding Service Awards in the Economics Department at AUP, 2013

TEACHING EXPERIENCE

University of Oxford:

Class Tutor for Database System Implementation, Spring 2016, Spring 2017, and Spring 2018.

- Teaching and Marking ca. 30 students for weekly homework exercises.

Tutorial Demonstrator for Computer Security, Fall 2015.

- Assisting 30+ students with their cryptography lab exercises.

The American University of Paris:

Teaching Assistant for Microeconomics, Macroeconomics, Econometrics, Calculus, and Statistics, Sept. 2011 - Dec. 2013.

REFERENCES

Prof. Dan Olteanu

Department of Informatics
University of Zurich

Email: olteanu@ifi.uzh.ch

Website: <https://www.ifi.uzh.ch/en/dast/people/Olteanu.html>

Prof. Dan Suciu

Paul G. Allen School of Computer Science & Engineering
University of Washington

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Prof. XuanLong Nguyen

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University of Michigan

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