

Utku Sirin

Postdoctoral researcher at Data Systems Laboratory
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RESEARCH INTERESTS

High-performance database management systems, modern micro-architectures, hardware-software co-design

PROFESSIONAL EXPERIENCE

- 2021 – now Harvard University Boston, MA, USA
Postdoctoral researcher, supervised by Prof. Stratos Idreos
- 2014 – 2021 École Polytechnique Fédérale de Lausanne (EPFL) Lausanne, Switzerland
Research and Teaching Assistant, advised by Prof. Anastasia Ailamaki
- 06 – 08/2017 Microsoft Research (MSR) Redmond, WA, USA
Research Intern at Data Management, Exploration and Mining (DMX) Group
- 2011 – 2013 Middle East Technical University (METU) Ankara, Turkey
Research and Teaching Assistant, advised by Prof. Faruk Polat

HONORS & AWARDS:

- Swiss National Science Foundation (SNSF) Early Postdoc.Mobility Fellowship, 2020
- Teaching assistant award by IC, EPFL, 2019
- Best paper award at DaMoN@SIGMOD, 2017
- ACM SIGMOD Student Research Competition (SRC), Winner, 2017
- Microsoft Research PhD scholarship, 2017
- Doctoral degree fellowship by IC, EPFL, 2014
- Ranked 1st in MSc program, GPA: 4.00/4.00, 2013
- Master's degree fellowship by Sci. and Tech. Research Council (TUBITAK), 2012 – 2013
- Ranked 1st in BSc program, GPA: 3.94/4.00, 2011
- Bachelor's degree fellowship by The Credits and Housing Board (KYK), 2006 – 2011
- Bachelor's degree fellowship by METU Development Foundation, 2006 – 2011
- Ranked 29th out of ~1.5 million students in nation-wide university entrance exam, 2006

EDUCATION

- 2014 – 2021: Ph.D. in Computer Science** EPFL, Switzerland
Thesis: Micro-architectural Analysis of Database Workloads
Advisor: Prof. Anastasia Ailamaki
- 2011 – 2013: M.Sc. in Computer Engineering** METU, Turkey
Graduation rank: 1, Grade: 4.00 / 4.00
Thesis: Batch-mode Reinforcement Learning for Controlling Gene Regulatory Networks and Multi-model Gene Expression Data Enrichment Framework
Advisor: Prof. Faruk Polat

PUBLICATIONS

- Utku Sirin: Micro-architectural Analysis of Database Workloads. **PhD Thesis, EPFL, 2021.**
- Utku Sirin, Pinar Tözün, Danica Porobic, Ahmad Yasin, Anastasia Ailamaki: Micro-architectural Analysis of In-memory OLTP: Revisited. In **VLDB J.** 30(4): 641-665, 2021.
- Utku Sirin, Sandhya Dwarkadas, Anastasia Ailamaki: Performance Characterization of HTAP Workloads. In **ICDE, 2021** (6-page short paper).
- Utku Sirin, Sandhya Dwarkadas, Anastasia Ailamaki: Workload Interference Analysis for HTAP. In **CIDR, 2021** (1-page abstract).
- Utku Sirin, Anastasia Ailamaki: Micro-architectural Analysis of OLAP: Limitations and Opportunities. **PVLDB** 13(6): 840-853, 2020.
- Anisa LLaveshi, Utku Sirin, Robert West, Anastasia Ailamaki: Accelerating B+tree Search by Using Simple Machine Learning Techniques. In **AIDB@VLDB, 2019.**
- Utku Sirin: Energy-efficient Database Machines. In **SIGMOD SRC, 2017** (2-page abstract).
- Utku Sirin, Ahmad Yasin, Anastasia Ailamaki: A Methodology for OLTP Micro-architectural Analysis. In **DaMoN@SIGMOD, 2017** (Best paper award).
- Utku Sirin, Raja Appuswamy, Anastasia Ailamaki: OLTP On A Server-grade ARM: Power, Throughput and Latency Comparison. In **DaMoN@SIGMOD, 2016.**
- Utku Sirin, Pinar Tözün, Danica Porobic, Anastasia Ailamaki: Micro-architectural Analysis of In-memory OLTP. In **SIGMOD, 2016.**
- Utku Sirin: OLTP's Core Cycles: What is "Performance Optimization"? In **HPTS, 2015** (5-min talk).
- Utku Sirin, Faruk Polat, Reda Alhajj: Batch Mode TD(λ) for Controlling Partially Observable Gene Regulatory Networks. In **IEEE/ACM Transactions on Computational Biology and Bioinformatics (TCBB)**, vol. 14, no. 6, pp. 1214-1227 (2015)
- Utku Sirin, Utku Erdogdu, Faruk Polat, Mehmet Tan, Reda Alhajj: Effective Gene Expression Data Generation Framework Based on Multi-model Approach. **Artificial Intelligence in Medicine (AIIM)**, 70:41-61 (2014)
- Utku Sirin, Faruk Polat, Reda Alhajj: Employing Batch Reinforcement Learning to Control Gene Regulation Without Explicitly Constructing Gene Regulatory Networks. In **IJCAI, 2013.**
- Utku Sirin, Utku Erdogdu, Mehmet Tan, Faruk Polat, Reda Alhajj: Effective Enrichment of Gene Expression Data Sets. In **ICMLA, 2012.**
- Utku Sirin, Ruket Çakici, Deniz Zeyrek: METU Turkish Discourse Bank Browser. In **LREC, 2012.**

TEACHING ASSISTANTSHIPS

- Spring 2016 – 2020: Introduction to Database Systems by Prof. Anastasia Ailamaki
- Fall 2019: Machine Learning for Database Systems by Prof. Anastasia Ailamaki, and Prof. Christoph Koch
- Fall 2018 – 2020: Computer Networks by Prof. Katerina Argyraki
- Fall 2017: Applied Data Analysis by Prof. Robert West
- Fall 2016: Introduction to Multiprocessor Architecture by Prof. Dionisios Pnevmatikatos

LANGUAGES

Turkish – Native, English – Fluent, French – Beginner

VOLUNTEERING

- Mentor at GirlsCoding organization: <http://girlscoding.org/>
- LauzHack 2020 against COVID-19: <http://tiny.cc/zk9nmz>

HOBBIES

- Acting. At the Village Players of Lausanne, an English-speaking theater club in Lausanne, Switzerland: <https://www.villageplayers.ch/>. At Theater Portrait, a theater club in Ankara, Turkey: <http://www.portresanat.com/>.
- Playing guitar and singing.

REFERENCES

Anastasia Ailamaki, Professor EPFL IC IINFCOM DIAS BC 226 (Bâtiment BC) Station 14 CH-1015 Lausanne anastasia.ailamaki@epfl.ch	Surajit Chaudhuri, Distinguished Scientist Microsoft Building 99 14820 NE 36th Street Redmond, Washington 98052 USA surajitc@microsoft.com
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Sandhya Dwarkadas, Professor University of Rochester, Rochester, NY 14627-0226 sandhya@cs.rochester.edu	Nick Koudas, Professor University of Toronto, 40 St. George Street Rm BA5240 koudas@cs.toronto.edu
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