
Babak Salimi

CONTACT INFORMATION

University of Washington
Department of Computer Science
and Engineering
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RESEARCH INTERESTS

I am interested in data science and knowledge management. My recent research focuses on data-driven decision making systems, causal inference, relational machine learning, responsible data science and data ethics.

ACADEMIC POSITIONS

Postdoctoral Research Associate **2016-current**

University of Washington, Seattle, USA

- I am a postdoc in the Allen School of Computer Science and Engineering, where I work with Prof. Dan Suciu and the database group.

Visiting Scholar

November-2019

University of California, Santa Cruz, USA

- Host: Prof. Lise Getoor

EDUCATION

Doctoral of Philosophy, Computer Science **2011-2015**

Carleton University, Ottawa, Canada

- Dissertation Topic: "Query-Answer Causality in Databases and Its Connections with Reverse Reasoning Tasks in Data and Knowledge Management"
- Advisor: Prof. Leopoldo Bertossi

Master of Science, Computation Theory

2006-2009

Sharif University of Technology, Tehran, Iran

- Dissertation Topic: "Incorporating Degree of Belief, Desire and Intention in BDI Agents"
- Advisor: Prof. Mohammad Ardeshtir

Bachelor of Engineering, Software Engineering

2001-2006

Azad University of Mashhad, Mashhad, Iran

HONORS AND AWARDS

Research Fellowships

- NSF Award IIS-1703431: "III: Medium: Collaborative Research: A Unified and Declarative Approach to Causal Analysis for Big Data" **2017-2020**
- University of Washington CSE Postdoc Research Award **2016-2017**

Paper Awards

- Invited submission to special issue of *ACM Transactions on Database Systems* (for the SIGMOD 2019 paper)
- Best Paper Award, SIGMOD 2019
- Best Demonstration Paper Award, VLDB 2018
- Senate Medal Candidate for Outstanding Graduate Work (For PhD dissertation)
- Invited submission to special issue of *Theory of Computing Systems* (for the ICDT 2015 paper)

Undergraduate Honors

- Ranked 25th (among 5000) in Iran's National Entrance Examination to graduate study **2005**

ACADEMIC EXPERIENCE

Lecturer, Computer Science

University of Washington, Seattle, USA

Winter 2018

- Course: Data Management for Data Science

Azad University, Mashhad, Iran

2010-2011

- Courses: Theory of Languages and Automata, Algorithm Design, Discrete Mathematics

Payamnour University, Mashhad, Iran

2008-2010

- Courses: Computation Theory, Graph Theory, Algorithm Design and Analysis, Discrete Mathematics

Teaching Assistant, Computer Science

Carleton University, Ottawa, Canada

2011-2016

- Courses: Database Management Systems, Programming Paradigms, Introduction to Computer Science

BOOKS

Babak Salimi and Mojtaba Poormohaghegh. *An Introduction to the Theory of Languages and Automata*. Translation of the English version to Farsi by Peter Linz. ISBN: 978-600-5068-45-0, 2009.

JOURNAL PUBLICATIONS

- Leopoldo Bertossi and Babak Salimi. *Causes for Query Answers from Databases: Datalog Abduction, View-Updates, and Integrity Constraints*. **International Journal of Approximate Reasoning** 90, 226-252, 2017.
- Leopoldo Bertossi and Babak Salimi. *From Causes for Database Queries to Repairs and Model-Based Diagnosis and Back*. **Theory of Computing Systems**. 61.1, 191-232, 2017.

CONFERENCE PUBLICATIONS

- Babak Salimi, Moe Kayali, Harsh Parikh, Sudeepa Roy, Lise Getoor, Dan Suciu. *Causal Relational Learning*. Submitted.
- Batya Kenig, Guna Prasaad, Babak Salimi, Dan Suciu. *Mining Approximate Acyclic Schemes from Relations*. To appear in Proceedings of the 2020 International Conference on Management of Data (**SIGMOD**), 2020.
- Babak Salimi, Bill Howe, Dan Suciu. *Data Management for Causal Algorithmic Fairness*. **IEEE Data Engineering Bulletin**, vol. 42, no. 3, 2019.
- Babak Salimi, Luke Rodriguez, Bill Howe, and Dan Suciu. *Interventional Fairness: Causal Database Repair for Algorithmic Fairness*. In Proceedings of the 2019 International Conference on Management of Data (**SIGMOD**), 793-810. ACM, 2019. **[Best Paper Award]**
- Luke Rodriguez, Babak Salimi, Haoyue Ping, Julia Stoyanovich, and Bill Howe. *Mobilitymirror: Bias-Adjusted Transportation Datasets*. In Workshop on **Big Social Data and Urban Computing**, 18-39. Springer, Cham, 2018.

- Babak Salimi, Corey Cole, Peter Li, Johannes Gehrke, and Dan Suciu. *HypDB: A Demonstration of Detecting, Explaining and Resolving Bias in OLAP Queries*. Proceedings of the **VLDB** Endowment 11, no. 12, 2062-2065, 2018. **[Best Demonstration Paper Award]**
- Babak Salimi, Johannes Gehrke, and Dan Suciu. *Bias in olap queries: Detection, Explanation, and Removal*. Proceedings of the 2018 International Conference on Management of Data (**SIGMOD**), 1021-1035. ACM, 2018.
- Babak Salimi, Corey Cole, Dan RK Ports, and Dan Suciu. *Zaliql: Causal Inference from Observational Data at Scale*. Proceedings of the **VLDB** Endowment 10, no. 12, 1957-1960, 2017.
- Helga Gudmundsdottir, Babak Salimi, Magdalena Balazinska, Dan RK Ports, and Dan Suciu. *A Demonstration of Interactive Analysis of Performance Measurements with Viska*. Proceedings of the 2017 ACM International Conference on Management of Data (**SIGMOD**), 1707-1710. ACM, 2017.
- Babak Salimi, Leopoldo Bertossi, Dan Suciu, and Guy Van den Broeck. *Quantifying Causal Effects on Query Answering in Databases*. In USENIX Workshop on the Theory and Practice of Provenance (**TaPP**'16), 2016.
- Babak Salimi, and Leopoldo Bertossi. *Causes for query answers from databases, datalog abduction and view-updates: The presence of integrity constraints*. In The Twenty-Ninth International **Flairs** Conference, 2016.
- Babak Salimi and Leopoldo Bertossi. *Query-Answer Causality in Databases: Abductive Diagnosis and View-Updates..* Proceedings of the **UAI** Conference on Advances in Causal Inference - Volume 1504, 76-85, 2015.
- Babak Salimi and Leopoldo Bertossi. *From Causes for Database Queries to Repairs and Model-Based Diagnosis and Back*. Proceedings of the 18th International Conference on Database Theory (**ICDT**), 2015.
- Babak Salimi and Leopoldo Bertossi. *Unifying Causality, Diagnosis, Repairs and View-Updates in Databases*. Presented at the First International Workshop on Big Uncertain Data (**BUDA**), 2014.
- Babak Salimi and Leopoldo Bertossi. *Causality in Databases: The Diagnosis and Repair Connections*. Proceedings of the 15th International Workshop on Non-Monotonic Reasoning (**NMR**), 2014. (Includes KR €600 travel fellowship)
- Babak Salimi and Leopoldo Bertossi. *Causality in Databases, Database Repairs, and Consistency-Based Diagnosis*. Proceedings of the 8th Alberto Mendelzon Workshop on Foundations of Data Management, Cartagena de Indias (**AMW**), 2014.

PH.D.
DISSERTATION

Query-Answer Causality in Databases and Its Connections with Reverse Reasoning Tasks in Data and Knowledge Management.
Carleton University, 2015.

PROFESSIONAL EXPERIENCES	Research Developer, Knowit Inc. Ottawa, Canada <ul style="list-style-type: none"> Led a research and development project for automated speech transcription of Web, TV, Radio and Telephonic audio streams. 	2015-2016
ACADEMIC SERVICES	<ul style="list-style-type: none"> External Reviewer: IJCAI (2014, 2018) SIGMOD 2019 PC Member: CIKM (2017, 2018), TAPP (2017,2019), FLAIRS (2017, 2018), AAAI 2020, DASFAA 2020, SIGMOD 2020 PC Chair: TAPP 2017 	
INVITED TALKS	<ul style="list-style-type: none"> Algorithmic fairness, Amazon, Seattle, USA Responsible Data Science, The University of Arizona, Tucson, USA Soundness and Fairness in Data-Driven Decision Making, University of California, Santa Cruz, USA Detecting Bias in Decision Support Queries, Tableau Software, Seattle, USA 	2019 2019 2019 2018
REFERENCES	<ul style="list-style-type: none"> Professor Dan Suciu, University of Washington. Email: suciu@cs.washington.edu Professor Lise Getoor, University of California, Santa Cruz. Email: getoor@soe.ucsc.edu Professor Leopoldo Bertossi, Carleton University. Email: bertossi@scs.carleton.ca Professor Bill Howe, University of Washington. Email: billhowe@uw.edu Professor Sudeepa Roy, Duke University. Email: sudeepa@cs.duke.edu Johannes Gehrke, Microsoft. Email: johannes@microsoft.com Dan Ports, Microsoft Research. Email: drkp@cs.washington.edu 	