

Babak Salimi

CONTACT INFORMATION

University of Washington
Department of Computer Science
and Engineering
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RESEARCH INTERESTS

I am broadly interested in data analysis and knowledge management. My recent research has been focused on data-driven decision making systems, causal inference, algorithmic fairness and statistical relational learning.

CURRENT POSITION **Postdoctoral Research Associate** **2016-current**

University of Washington, Seattle, USA

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

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**
- NSERC Discovery and the NSERC Strategic Network on Business Intelligence **2011-2015**

Paper Awards

- SIGMOD Best Paper Award (for SIGMOD 2019 paper)
- VLDB Best Demonstration Award (for VLDB 2018 paper)
- 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

Teaching Assistant, Computer Science

Carleton University, Ottawa, Canada

2011-2016

- Answered questions of 250 undergraduate students during office hours
- Accurately graded and recorded students marks while meeting deadlines set by professor
- Courses: Database Management Systems, Programming Paradigm, Introduction to Computer Science

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

BOOKS

An Introduction to the Theory of Languages and Automata

Translation of the English version by Peter linz in Persian. ISBN: 978-600-5068-45-0, 2009

PAPERS

- **Interventional Fairness: Causal Database Repair for Algorithmic Fairness.**
With Luke Rodriguez, Bill Howe, and Dan Suciu. Accepted in SIGMOD 2019 [\[Best Paper Award\]](#)
- **HypDB: A Demonstration of Detecting, Explaining and Resolving Bias in OLAP queries**
with Corey Cole, Peter Li, Johannes Gehrke and Dan Suciu. Proceedings of the VLDB Endowment, 2018 [\[Best Demonstration Award\]](#)
- **MobilityMirror: Bias-Adjusted Synthetic Transportation Datasets.**
With Luke Rodriguez, Babak Salimi, Haoyue Ping, Julia Stoyanovich and Bill Howe. BiDU 2018
- **Bias in OLAP Queries: Detection, Explanation, and Removal (think twice about your group-by query).**
With Johannes Gehrke and Dan Suciu. SIGMOD '18- Proceedings of the 2018 ACM International Conference on Management of Data, 2018
- **A Framework for Inferring Causality from Multi-Relational Observational Data using Conditional Independence.**
With Sudeepa Roy. arXiv preprint arXiv:1708.02536, 2017
- **Causal Inference from Observational Data at Scale.**
With Corey Cole, D. R. Ports, and Dan Suciu. Proceedings of the VLDB Endowment, 2017
- **A Demonstration of Interactive Analysis of Performance Measurements with Viska.**
With Helga Gudmundsdottir, Magdalena Balazinska, Dan R.K. Ports, Dan Suciu. SIGMOD '17- Proceedings of the 2017 ACM International Conference on Management of Data, 2017
- **From Causes for Query Answers from Databases: Datalog Abduction, View-Updates, and Integrity Constraints.**
With Leopoldo Bertossi. International Journal of Approximate Reasoning , 2017

- **From Causes for Database Queries to Repairs and Model-Based Diagnosis and Back.**
With Leopoldo Bertossi. Theory of Computing Systems, 2017
- **Quantifying Causal Effects on Query Answering in Databases.**
With Leopoldo Bertossi, Dan Sucie, Guy Van den Broeck. in Proc. 8th USENIX Workshop on the Theory and Practice of Provenance (TaPP'16), June 8-9, Washington D.C., USA, 2016
- **From Causes for Database Queries to Repairs and Model-Based Diagnosis and Back.**
With Leopoldo Bertossi. In Proc. FLAIRS, 2016
- **Query-Answer Causality in Databases and its Connections with Reverse Reasoning Tasks in Data and Knowledge Management.**
PhD thesis, 2015
- **Query-Answer Causality in Databases: Abductive Diagnosis and View-Updates.**
with Leopoldo Bertossi. To appear in Proc. of the UAI Workshop on Causal Inference, 2015
- **From Causes for Database Queries to Repairs and Model-Based Diagnosis and Back.**
with Leopoldo Bertossi. In Proc. 18th International Conference on Database Theory (ICDT), 2015
- **Unifying Causality, Diagnosis, Repairs and View-Updates in Databases.**
With Leopoldo Bertossi. Presented at the First International Workshop on Big Uncertain Data (BUDA), 2014
- **Causality in Databases: The Diagnosis and Repair Connections.**
With Leopoldo Bertossi. Presented at the 15th International Workshop on Non-Monotonic Reasoning 2014 (Includes KR €600 travel fellowship)
- **Causality in Databases, Database Repairs, and Consistency-Based Diagnosis.**
With Leopoldo Bertossi. In Proc. AMW, 2014

PROFESSIONAL EXPERIENCES	Research Developer, Knowit Inc. 2015-2016 Ottawa, Canada <ul style="list-style-type: none"> • Leading a research and development project for automated speech transcription of Web, TV, Radio and Telephonic audio streams using java
ACADEMIC SERVICES	<ul style="list-style-type: none"> • External Reviewer: IJCAI 2014, IJCAI 2018, SIGMOD 2019 • PC Member: CIKM 2017, CIKM 2018, FLAIRS 2017, FLAIRS 2018, SIGMOD 2020 • Program Chair: TAPP 2017, TAPP 2019
TALK	<ul style="list-style-type: none"> • Detecting Bias in Decision Support Queries, Tableau Software, Seattle, USA 2018
REFERENCES	<ul style="list-style-type: none"> • Professor Dan Suciu- University of Washington. Email: suciu@cs.washington.edu • Professor Leopoldo Bertossi - Carleton University. Email: bertossi@scs.carleton.ca • Professor Bill How- University of Washington. Email: billhowe@uw.edu • Johannes Gehrke - Microsoft. Email: johannes@microsoft.com • Dan Ports - Microsoft. Email: drkp@cs.washington.edu