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## Babak Salimi

### CONTACT INFORMATION

University of Washington  
Department of Computer Science  
and Engineering  
185 Stevens Way  
Seattle WA 98195 2350  
USA

*Cell Phone:* +1 (778) 681-6913  
*E-mail:* bsalimi@cs.washington.edu

### 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" (Co-PI) **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 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 25<sup>th</sup> (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*. Submitted.
- 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	<b>Research Developer, Knowit Inc.</b> Ottawa, Canada <ul style="list-style-type: none"> <li>Led a research and development project for automated speech transcription of Web, TV, Radio and Telephonic audio streams.</li> </ul>	<b>2015-2016</b>
ACADEMIC SERVICES	<ul style="list-style-type: none"> <li>External Reviewer: IJCAI (2014, 2018) SIGMOD 2019</li> <li>PC Member: CIKM (2017, 2018), TAPP (2017,2019), FLAIRS (2017, 2018), AAAI 2020, DASFAA 2020, SIGMOD 2020</li> <li>PC Chair: TAPP 2017</li> </ul>	
TALKS	<ul style="list-style-type: none"> <li>Detecting Bias in Decision Support Queries, Tableau Software, Seattle, USA <b>2018</b></li> </ul>	
REFERENCES	<ul style="list-style-type: none"> <li>Professor Dan Suciu, University of Washington. Email: <a href="mailto:suciu@cs.washington.edu">suciu@cs.washington.edu</a></li> <li>Professor Lise Getoor, University of California, Santa Cruz. Email: <a href="mailto:getoor@soe.ucsc.edu">getoor@soe.ucsc.edu</a></li> <li>Professor Leopoldo Bertossi, Carleton University. Email: <a href="mailto:bertossi@scs.carleton.ca">bertossi@scs.carleton.ca</a></li> <li>Professor Bill Howe, University of Washington. Email: <a href="mailto:billhowe@uw.edu">billhowe@uw.edu</a></li> <li>Professor Sudeepa Roy, Duke University. Email: <a href="mailto:sudeepa@cs.duke.edu">sudeepa@cs.duke.edu</a></li> <li>Johannes Gehrke, Microsoft. Email: <a href="mailto:johannes@microsoft.com">johannes@microsoft.com</a></li> <li>Dan Ports, Microsoft Research. Email: <a href="mailto:drkp@cs.washington.edu">drkp@cs.washington.edu</a></li> </ul>	