





# Mohammad Ali Javidian, Ph.D.

 <https://majavid.github.io/>

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 <https://scholar.google.com/citations?user=dtuQ0nQAAAAJ&hl=en/>

 <https://github.com/majavid/>

## Research Interests

- Probabilistic Graphical Models: Bayesian Networks, Chain Graphs, Markov Networks; Causality; Transfer Learning; Quantum Computing.

## Education

- 2015 – 2019 ■ **Ph.D.** in Computer Science and Engineering, **University of South Carolina, USA**.  
Thesis title: *Properties, Learning Algorithms, and Applications of Chain Graphs and Bayesian Hypergraphs*. Advisor: Marco Valtorta, Ph.D.
- 2011 – 2013 ■ **M.Sc.** in Computer Science, **Sharif University of Technology, Iran**.  
Thesis title: *Disappointment in Social Choice Protocols*. Advisor: Rasoul Ramezani, Ph.D.
- 2004 – 2007 ■ **M.Sc.** in Mathematics, **Shiraz University, Iran**.  
Thesis title: *Invariant Subspaces for the Backward Shift on Hilbert Spaces of Analytic Functions with Regular Norm*. Advisor: Bahram Khani Robati, Ph.D.
- 1999 – 2003 ■ **B.Sc.** in Mathematics, **Shahid Bahonar University of Kerman, Iran**.

## Research Positions

- Sep 2020–Now ■ **Postdoctoral researcher**, *Purdue University*, West Lafayette, IN, USA.  
Working with Prof. Zubin Jacob and Prof. Vaneet Aggarwal on the development of novel algorithmic and theoretically principled methods for quantum entropic causal inference.
- Sep 2019–Now ■ **Research Associate**, *University of South Carolina*, Columbia, SC, USA.  
Working with Dr. Pooyan Jamshidi on performance debugging of highly-configurable software systems, collaborating very closely with Prof. Marco Valtorta.
- Jan 2019–Aug 2019 ■ **Research Assistant**, *University of South Carolina*, Columbia, SC, USA.  
Working with Dr. Pooyan Jamshidi on causal structure learning and their applications in machine learning systems, collaborating very closely with Prof. Marco Valtorta.
- Jan 2017–Dec 2018 ■ **Research Assistant**, *University of South Carolina*, Columbia, SC, USA.  
Working with Prof. Marco Valtorta on probabilistic graphical models: interpretations, expressiveness and learning algorithms.
- Mar 2012–Sep 2013 ■ **Research Assistant**, *Sharif University of Technology*, Tehran, Iran.  
Working with Dr. Rasoul Ramezani on social choice theory and voting protocols.
- Feb 2006–Sep 2007 ■ **Research Assistant**, *University of Shiraz*, Shiraz, Iran.  
Working with Dr. Bahram Khani Robati on functional analysis: Hilbert and Bergman spaces.

## Research Publications

### Journal Articles

- 1 **Mohammad Ali Javidian**, Valtorta, M., & P. Jamshidi. (2020). AMP chain graphs: Minimal separators and structure learning algorithms. *Journal of Artificial Intelligence Research (JAIR)*.
- 2 **Mohammad Ali Javidian**, Wang, Z., Lu, L., & Valtorta, M. (2020). On a hypergraph probabilistic graphical model. *Annals of Mathematics and Artificial Intelligence*.

### Conference Proceedings







- 1 Rahman, M. M., Rasheed, A., Khan, M. M., **Mohammad Ali Javidian**, P. Jamshidi, & Mamun-Or-Rashid, M. (2021). Accelerating recursive partition-based causal structure learning using an improved structure refinement approach, In *Proceedings of the 20th International Conference on Autonomous Agents and Multiagent Systems (AAMAS-2021) [to appear]*.

- 2 **Mohammad Ali Javidian**, P. Jamshidi, & Valtorta, M. (2020). Learning LWF chain graphs: A Markov blanket discovery approach, In *Proceedings of the Uncertainty in Artificial Intelligence (UAI'20)*.
- 3 **Mohammad Ali Javidian**, Jamshidi, P., & Ramezani, R. (2019). Avoiding social disappointment in elections, In *Proceedings of the International Conference on Autonomous Agents and Multiagent Systems (AAMAS'19)*.
- 4 **Mohammad Ali Javidian**, Valtorta, M., & P. Jamshidi. (2019). Order-independent structure learning of multivariate regression chain graphs, In *Proceedings of the International Conference on Scalable Uncertainty Management (SUM'19)*.
- 5 **Mohammad Ali Javidian**, & Valtorta, M. (2018c). Finding minimal separators in LWF chain graphs, In *Proceedings of the International Conference on Probabilistic Graphical Models (PGM'18)*.



## Workshop and Symposium Papers

- 1 Krishna, R., Iqbal, S., **Mohammad Ali Javidian**, Ray, B., & Jamshidi, P. (2020). CAUPER : A causal inference tool to repair non-functional performance faults [NeurIPS 2020 Workshop on Machine Learning for Systems (MLFS2020), Zoomville].
- 2 **Mohammad Ali Javidian**, P. Jamshidi, & Valtorta, M. (2019). Transfer learning for performance modeling of configurable systems: A causal analysis [First AAAI Spring Symposium "Beyond Curve Fitting: Causation, Counterfactuals, and Imagination-based AI", Stanford, CA].
- 3 Wang, Z., **Mohammad Ali Javidian**, Lu, L., & Valtorta, M. (2019). The causal interpretations of Bayesian hypergraphs [First AAAI Spring Symposium "Beyond Curve Fitting: Causation, Counterfactuals, and Imagination-based AI", Stanford, CA].
- 4 **Mohammad Ali Javidian**, & Valtorta, M. (2018a). On the properties of MVR chain graphs [Workshop proceedings of the International Conference on Probabilistic Graphical Models (PGM'18), Prague].
- 5 **Mohammad Ali Javidian**, & Valtorta, M. (2018b). Finding minimal separators in ancestral graphs [Causal Inference Workshop at the Uncertainty in Artificial Intelligence (UAI'18), Monterey, CA].


## Teaching Experience

Fall 2016	 <b>Teaching Assistant</b> , University of South Carolina, Columbia, SC, USA. CSCE 330, Programming Language Structures CSCE 355, Foundations of Computation
Summer 2016	 <b>Instructor</b> , University of South Carolina, Columbia, SC, USA. CSCE 101, Introduction to Computer Concepts
Fall 2015–Spring 2016	 <b>Teaching Assistant (Lab TA)</b> , University of South Carolina, Columbia, SC, USA. CSCE 145–6, Algorithmic Design I,II
Spring 2014	 <b>Instructor</b> , Sharif University of Technology, Tehran, Iran. Math 141–2, Calculus I,II
2007–2011	 <b>Instructor</b> , Azad University of Shiraz (SAMA)/Neyriz/Sepidan, Fars, Iran. Discrete Mathematics, Calculus I,II, Numerical Analysis
2003–2004	 <b>Teacher</b> , High Schools in Darab, Fars, Iran. Discrete Mathematics, Calculus, Statistics, Linear Algebra

## Mentoring Experience

Spring 2020–now	 <b>AI Sys Lab</b> , University of South Carolina, Columbia, SC, USA. Project: Performance Debugging of Software Systems. Mentee: Md Shahriar Iqbal (graduate student)
Summer 2020–now	 <b>AI Sys Lab</b> , University of South Carolina, Columbia, SC, USA. Project: Causal Transfer Learning in Software Systems. Mentee: Cody Shearer and Om Pandey (undergraduate student)
Summer 2019	 <b>AI Sys Lab</b> , University of South Carolina, Columbia, SC, USA. Project: Bayesian Structure Learning (McNAIR Junior Fellows) Mentee: Tristan Klintworth (undergraduate student)

## Professional Service

-  **Program Committee member**, UAI 2021, Online.

## Professional Service (continued)

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- **Reviewer**, AISTATS 2021, Virtual.
- **Reviewer**, IJAR, Journal. (I reviewed one paper for this journal.)
- **Program Committee member**, PGM 2020, Aalborg.
- **Reviewer**, UAI 2020, Toronto.
- **Reviewer**, SEAMS 2020, Seoul.
- **Reviewer**, SEAMS 2019, Montreal.
- **Program Committee member**, PGM 2018, Prague.
- **Reviewer**, UAI 2018, California.
- **Reviewer**, PLOS One, Journal. (I reviewed one paper for this journal.)
- **Reviewer**, UAI 2017, Sydney.