Mohammad Ali Javidian, Ph.D.

Thttps://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.

M.Sc. in Computer Science, Sharif University of Technology, Iran. 2011 - 2013 Thesis title: Disappointment in Social Choice Protocols. Advisor: Rasoul Ramezanian, Ph.D.

M.Sc. in Mathematics, Shiraz University, Iran. 2004 - 2007 Thesis title: Invariant Subspaces for the Backward Shift on Hilbert Spaces of Analytic Functions with Regular Norm. Advisor: Bahram Khani Robati, Ph.D.

B.Sc. in Mathematics, Shahid Bahonar University of Kerman, Iran. 1999 - 2003

Research Positions

Sep 2020-Now **Postdoctoral researcher**, Purdue University, West Lafavette, 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. Research Associate, University of South Carolina, Columbia, SC, USA. Sep 2019-Now Working with Dr. Pooyan Jamshidi on performance debugging of highly-configurable software systems, collaborating very closely with Prof. Marco Valtorta. Research Assistant, University of South Carolina, Columbia, SC, USA. Jan 2019-Aug 2019 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. Research Assistant, Sharif University of Technology, Tehran, Iran. Mar 2012-Sep 2013 Working with Dr. Rasoul Ramezanian on social choice theory and voting protocols.

Research Assistant, *University of Shiraz*, Shiraz, Iran.

Feb 2006-Sep 2007 Working with Dr. Bahram Khani Robati on functional analysis: Hilbert and Bergman spaces.

Research Publications

Journal Articles

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

Conference Proceedings

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].

- 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)*.
- Mohammad Ali Javidian, Jamshidi, P., & Ramezanian, R. (2019). Avoiding social disappointment in elections, In Proceedings of the International Conference on Autonomous Agents and Multiagent Systems (AAMAS'19).
- 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)*.
- 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].
- 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].
- 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].
- 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].
- 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 **Teaching Assistant**, *University of South Carolina*, Columbia, SC, USA.

CSCE 330, Programming Language Structures CSCE 355, Foundations of Computation

Summer 2016 Instructor, University of South Carolina, Columbia, SC, USA.

CSCE 101, Introduction to Computer Concepts

Fall 2015–Spring 2016 **Teaching Assistant (Lab TA)**, *University of South Carolina*, Columbia, SC, USA. CSCE 145–6, Algorithmic Design I,II

Spring 2014 | Instructor, Sharif University of Technology, Tehran, Iran.

Math 141–2, Calculus I,II

Instructor, Azad University of Shiraz (SAMA)/Neyriz/Sepidan, Fars, Iran. Discrete Mathematics, Calculus I,II, Numerical Analysis

Teacher, *High Schools in Darab*, Fars, Iran.

Discrete Mathematics, Calculus, Statistics, Linear Algebra

Mentoring Experience

Spring 2020-now AlSys Lab, University of South Carolina, Columbia, SC, USA.

Project: Performance Debugging of Software Systems.

Mentee: Md Shahriar Iqbal (graduate student)

Summer 2020-now

AlSys Lab, University of South Carolina, Columbia

AlSys Lab, *University of South Carolina*, Columbia, SC, USA. Project: Causal Transfer Learning in Software Systems.

Mentee: Cody Shearer and Om Pandey (undergraduate student)

Summer 2019 AISys Lab, 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)

- **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.