Aida Rahmattalabi

PhD Candidate, University of Southern California
Center for Artificial Intelligence in Society (CAIS)
Personal Website: https://aida-rahmattalabi.github.io/
Google Scholar: http://bit.ly/scholar-aida

RESEARCH INTERESTS

Data-Driven Decision Making, Machine Learning, Causal Inference, Responsible AI, Algorithmic Fairness, OR/AI for Social Impact, Stochastic and Robust Optimization, Reinforcement Learning

EDUCATION

Ph.D. at University of Southern California — Los Angeles, CA
Major: Computer Science — *Aug. 2016 – Present*
Advisors: Phebe Vayanos, Milind Tambe (Harvard University)

M.Sc. at Oregon State University — Corvallis, OR
Major: Robotics; Minor: Computer Science — *Oct. 2014 – Aug. 2016*
Advisor: Kagan Tumer

B.Sc. at Amirkabir University of Technology (Tehran Polytechnic) — Tehran, Iran
Major: Mechanical Engineering — *Sept. 2009 – Sept. 2013*

EXPERIENCE

University of Southern California — Los Angeles, CA
OR/AI for Social Good, Algorithmic Fairness, Data-Driven Decision Making — *Aug 2016 - Present*

- **Fair Counterfactual Policy Learning in Online Housing Resource Matching.** Proposed a policy to match housing resources and individuals that arrive online. Using historical data, the quality of the matches are learnt via causal inference. Fairness constraints are incorporated in the policy design.
- **Fairness in Social Network-based Interventions.** Proposed desiderata to ensure fairness in social network-based interventions. Demonstrated that unlike classical resource allocation problems, the network structure causes unintended consequences which popular notions of fairness suffer from.
- **Social Network-based Suicide Prevention and Substance Abuse Interventions.** Proposed social network-based model for popular public health interventions: substance abuse and suicide prevention. Developed approximation efficient algorithms to optimize the effectiveness of these interventions.

HP Labs. — Corvallis, OR
Robotic Program Intern — *Summer 2016*

- Developed and implemented autonomous mapping, localization and control for robotic units in semi-structured environments.

Oregon State University, AADI Laboratory — Corvallis, OR
Learning Based Control, Multiagent Reinforcement Learning — *Oct 2014 - Aug 2016*

- **(Thesis) Credit Assignment in Tightly Coupled Multiagent Domains.** Developed a new rewarding scheme for multiagent reinforcement learning to accomplish tightly coupled tasks.

CONFERENCE PAPERS

A. Rahmattalabi*, S. Jabbari*, H. Lakkaraju, P. Vayanos, M. Izenberg, R. Brown, E. Rice, M. Tambe. Fair Influence Maximization: a Welfare Optimization Approach. Proceedings of the AAAI Conference on Artificial Intelligence 2021. (∗ equal contributions)

A. Rahmattalabi, P. Vayanos, A. Fulginiti, E. Rice, B. Wilder, A. Yadav, M. Tambe. Exploring Algorithmic Fairness in Robust Graph Covering Problems. Proceedings of the Thirty-third Conference on Neural Information Processing Systems (NeurIPS) 2019.

A. Rahmattalabi, P. Vayanos, M. Tambe. Robust Peer-Monitoring on Graphs with an Application to Suicide Prevention in Social Networks. International Conference on Autonomous Agents and Multiagent Systems (AAMAS) 2019, Extended Abstract.

A. Rahmattalabi, P. Vayanos, M. Tambe. A Robust Optimization Approach to Designing Near-Optimal Strategies for Constant-Sum Monitoring Games. Conference on Decision and Game Theory for Security (GameSec) 2018.

A. Rahmattalabi, J. Chung, M. Colby, K. Tumer. D++: Structural credit assignment in tightly coupled multiagent domains. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2016.

WORKSHOP PAPERS

A. Rahmattalabi, S. Jabbari, H. Lakkaraju, P. Vayanos, M. Tambe. Fairness in Public Health Preventative Interventions. AAAI Conference on Artificial Intelligence, Health Intelligence Workshop 2020.

A. Rahmattalabi, A. Adhikari, P. Vayanos, M. Tambe, E. Rice, R. Baker. Influence Maximization for Social Network Based Substance Abuse Prevention. International Conference on Autonomous Agents and Multiagent Systems (AAMAS), Strategic Reasoning for Societal Challenges Workshop (SRSC) 2019.

A. Yadav, **A. Rahmattalabi**, E. Kamar, P. Vayanos, M. Tambe, V. Noronha. Explanation Systems for Influence Maximization Algorithms. International Joint Conference on Artificial Intelligence (IJCAI), International Workshop on Social Influence Analysis (SocInf) 2017.

A. Rahmattalabi, J. Chung, K. Tumer. D++: Structural credit assignment in tightly coupled multiagent domains. Robotics: Science and Systems Conference (RSS), Workshop on Online Decision-Making in Multi-Robot Coordination 2016.

A. Rahamttalabi, M. Colby, K. Tumer. Coordination of Large Distributed Sensor Networks Using Novel Evolutionary Algorithms. International Society of Automation Power Industry Division Symposium 2015.

BOOK CHAPTER

A. Fulginiti, **A. Rahmattalabi**, J. Call, P. Vayano, E. Rice. Using Algorithmic Solutions to Address Gatekeeper Training Issues on College Campuses. Under review for the book chapter titled Modeling for Health: Making Changes.

A. Rahmattalabi, L. Onasch-Vera, Roybal, O., Nguyen, K., Tran, L., Petering, R., M. Tambe. Artificial Intelligence for Improving Access to Sexual Health Necessities for Youth Experiencing Homelessness. Artificial Intelligence and Social Work, 2018.

GRANTS AND AWARDS

Women in Operations Research - Bayer Scholarship, INFORMS 2020.

Diversity, Equity and Inclusion Ambassadors Award, INFORMS 2020.

University of Southern California WiSE Travel Award 2017, 2018, 2019.

Living to Love Another Day Foundation ($5,000): Designed the algorithm that secured the incentive funds for pilot deployment of suicide prevention intervention (original work published at NeurIPS) 2019.

MENTORSHIP

Kevin Chen, B.Sc. Student at University of Southern California, Project: Exploring Fairness in Causal Inference, Winter 2021.

Kathryn Dullerud, B.Sc. Student at University of Southern California, Project: A Case Study on the Performance of Housing Allocation Policies Among People Experiencing Homelessness, from Summer 2020.

WiSE Mentoring Program, University of Southern California, Summer 2020.

SKILLS

Technical Convex and Combinatorial Optimization, Machine Learning, Causal Inference, Data Analysis

Programming Languages Python, C++, MATLAB

Software Packages and Libraries RStudio, Tensorflow, Keras, Scikit-learn, Pandas, Gurobi, MySQL

ORGANIZATION ACTIVITIES AND OUTREACH PROGRAMS

Co-chair of the session on Fairness in Optimization and Machine Learning, INFORMS 2020
Program Committee Member for Workshop on AI for Social impact, Harvard University 2020
Program Committee Member at TRY AI Diversity and Inclusion Event, AAAI 2020
Diversity, Equity and Inclusion Program Ambassador at INFORMS 2020

REVIEWING ACTIVITY

Reviewer for AAAI 2021, NeurIPS 2020
Reviewer for CRCS Workshop on AI for Social Impact, Harvard University 2020
Reviewer for Emerging Track on AI for Social Impact, AAAI 2020
Reviewer for Artificial Intelligence, Ethics and Society (AIES) 2018

SELECTED COURSES

Artificial Intelligence, Large Scale Optimization and Machine Learning, Structure and Dynamics of Networked Information, Foundations of Optimization, Introduction to Mathematical Statistics, Deep Learning.

TEACHING ASSISTANTSHIP

CSCI 570: Analysis of Algorithms *Fall 2018*

CSCI 103: Introduction to Programming C++ *Fall 2016*

REFERENCE

Milind Tambe, milind_tambe@harvard.edu
Phebe Vayanos, phebe.vayanos@usc.edu