Shalmali Joshi

Curriculum Vitae

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Current Position:
Postdoctoral Fellow, Vector Institute

Past Affiliations:
IDEA Lab, WNCG at UT Austin

Education

'13- '18	Ph.D., Electrical & Computer Engg	UT Austin (Advisor: Joydeep Ghosh)
'09-'11	M.S., Electrical & Computer Engg	UC, San Diego
'05-'09	B. Tech., Electrical Engg	Vishveshvaraya Natl. Inst. of Tech., India

Research Interests

Developing reliable, fair, and explainable Machine Learning for Healthcare

Work Experience [Employment History]

Nov '18-	Postdoctoral Fellow (PI: Anna Goldenberg)	**Vector Institute**, Toronto, CA
Sept '13-Dec '18	Graduate Research Assistant	**UT Austin**, Austin, US
Jun '11-Jun '13	Software Engineer	**Amazon Lab 126**, Sunnyvale, US

Scientific products

Manuscripts - In Submission

1. Sana Tonekaboni*, **Shalmali Joshi***, David Duvenaud, and Anna Goldenberg. What went wrong and when? instance-wise feature importance for time-series models. 2019 [arXiv]

2. Taylor Killian, Marzyeh Ghassemi, and **Shalmali Joshi**. Counterfactually guided policy transferin clinical settings. In *Under Review*, 2020 [arXiv]

Publications - Conference and Journal

3. Melissa McCradden, **Shalmali Joshi**, James Anderson, and Mjaye Mazwi. When your only tool is a hammer: ethical limitations of computational fairness solutions in healthcare machine learning **(Oral)**. In ***AAAI Conference on AI Ethics & Society (AIES), Lancet Digital Health***, 2020 [url]

4. Irene Chen, **Shalmali Joshi**, and Marzyeh Ghassemi. Treating health disparities with AI. In ***Nature Medicine***, 2020 [url]

5. **Shalmali Joshi***, Sana Tonekaboni*, Melissa McCradden, and Anna Goldenberg. What clinicians want: Contextualizing explainable machine learning for clinical end use. In ***Machine Learning for Healthcare (MLHC)***, 2019 [url]

6. **Shalmali Joshi**, Rajiv Khanna, and Joydeep Ghosh. Co-regularized monotone regtargeting for semi-supervised LeTOR. In ***Siam International Conference on Data Mining (SDM)*** , 2018 [url]

7. **Shalmali Joshi**, Suriya Gunasekar, David Sontag, and Joydeep Ghosh. Identifiable phenotyping using constrained Non-Negative matrix factorization. In ***Machine Learning for Healthcare Conference (MLHC)***, 2016 [url]

8. **Shalmali Joshi**, Joydeep Ghosh, Mark Reid, and Oluwasanmi Koyejo. Rényi divergence minimization based co-regularized multiview clustering. ***ECML-PKDD Journal Track - Machine Learning***, 2016 [url]

9. **Shalmali Joshi**, Oluwasanmi Koyejo, Kristine Resurreccion, and Joydeep Ghosh. Simultaneous prognosis and exploratory analysis of multiple chronic conditions using clinical notes. In ***International Conference on Healthcare Informatics (ICHI)***, 2015 [url]

Peer Reviewed Workshop/Abstracts

10. Taylor Killian, Marzyeh Ghassemi, and **Shalmali Joshi**. Counterfactually guided policy transferin clinical settings. In ***Inductive Biases, Invariances and Generalization in RL (BIG) at ICML***, 2020 [url]

11. Taylor Killian, Marzyeh Ghassemi, and **Shalmali Joshi**. Sequential explanations with mental model-based policies. In ***Workshop on Human Interpretability in Machine Learning at ICML***, 2020 [arXiv]

12. Sana Tonekaboni, **Shalmali Joshi**, and Anna Goldenberg. Individualized feature importance for time series risk prediction models. In ***Machine Learning for Health Workshop at NeurIPS***, 2019

13. Melissa McCradden, James Anderson, and **Shalmali Joshi**. When your only tool is a hammer: The limits of computational solutions to bias in healthcare ml. In ***Fair ML for Health Workshop at NeurIPS***, 2019

14. Seungeun Yi, Shirly Wang, **Shalmali Joshi**, and Marzyeh Ghassemi. Fair and robust treatment effect estimates: Estimation under treatment and outcome disparity with deep neural models. In ***Fair ML for Health Workshop at NeurIPS***, 2019

15. Melissa McCradden, Sana Tonekaboni, **Shalmali Joshi**, and Anna Goldenberg. Five pillars of explainable clinical machine learning. In ***Frontier of AI-Assisted Care (FAC), Scientific Symposium***, 2019

16. **Shalmali Joshi**, Oluwasanmi Koyejo, Been Kim, Warut Vijitbenjaronk, and Joydeep Ghosh. Towards realistic individual recourse and actionable explanations in black-box decision making systems. In ***SafeML Workshop at the International Conference on Learning Representations (ICLR)***, 2019

17. **Shalmali Joshi**, Been Kim, Oluwasanmi Koyejo, and Joydeep Ghosh. Through the looking GANs. In ***Women in Machine Learning Workshop @ NeurIPS***, 2017

18. **Shalmali Joshi**, Oluwasanmi Koyejo, and Joydeep Ghosh. Simultaneous prognosis of multiple chronic conditions from heterogeneous EHR data. In ***International Conference on Healthcare Informatics (ICHI)***, 2015

19. **Shalmali Joshi**, Oluwasanmi Koyejo, and Joydeep Ghosh. Multiview clustering via constrained bayesian inference. In ***Workshop on Divergence Methods for Probabilistic Inference at ICML***, 2014

Theses

20. **Shalmali Joshi**. *Constraint based Approaches to Interpretable and Semi-Supervised Machine Learning*. PhD thesis, The University of Texas at Austin, December 2018

*Equal Contribution.

Invited Talks

July, '20: Data Science Africa: Ethics for ML in Healthcare

March, '20: Guest Lecture, on Fairness, Explainability in ML, AI and Society Class at McMaster University

January, '20: Guest Lecture, Causal Inference in ML for Health Graduate Class UofT CS

November, '19: Guest Lecture, AI and Ethics Graduate Class UofT CS

November, '19: The 99 AI Challenge cohort with University of Toronto Libraries

November, '19: CSI Departmental Seminar, Emory University, Atlanta, Georgia

October, '19: Data & Society Meeting at NYU on Evaluating Fairness for ML in Health

August, '19: Launch event of the Schwartz Reisman Institute for Technology and Society (SRIT&S) on fairness and explainability in health

Teaching experience (Teaching Assistant)

Fall '15	Advanced Predictive Modeling	McCombs School of Business, UT Austin
Fall '14	Graduate Data Mining	Electrical & Computer Engg., UT Austin
Spring '14	Graduate Data Mining	Electrical & Computer Engg., UT Austin

Internship Experience

Summer '15	Technical Intern	**Yahoo! Labs**, Sunnyvale, CA, US
Summer '10	HPC Algorithms Intern	**Life Technologies**, Carlsbad, CA, US
Summer '07	Undergraduate Researcher	**IIT Madras, India**

Service

Comms Chair	1^{st} ACM Conference on Health, Inference, and Learning (CHIL)	2020
Reviewer	NeurIPS	2020
Co-chair	NeurIPS Workshop, Fairness in Machine Learning for Health	2019
Reviewer	AAAI, ICLR, AISTATS, NeurIPS, ICML, Nature Medicine	2019
PC Member	ICLR Workshop, DebugML	2019
PC Member	NeurIPS Workshop, Machine Learning for Health	2018
Reviewer	MLHC, WiML@NeurIPS (Women In Machine Learning), ML4H Workshop at NeurIPS	2017
Reviewer	NeurIPS, ICML, TKDD	2015

Awards

2017	WiML@NIPS Travel Award
2015	IEEE ICHI Travel Award
2003	National Talent Search Scholarship, Govt. of India

Technical Skills

Programming/Scripting	Expert: Python, MATLAB, Bash Competent: C++, C, R, XML,Perl
Libraries, Tools, IDEs	Expert: PyTorch, Tensorflow, scikit_learn, numpy, scipy, vim Competent: STL, Cvx, openCV, Qt Creator, RStudio, PyCharm, CUDA API, gcc, gdb, LibSVM
Versioning Tools	Expert: Git, svn
Operating Systems	OSx, Linux

References

Available Upon Request