

# Bashir Rastegarpanah

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**Summary** I am a machine learning scientist with hands-on experience in developing novel data-driven solutions to problems from domains such as recommender systems and systems biology. I am passionate about building efficient learning systems that are robust and trustworthy.

**Education**

- ◇ **Ph.D.** Computer Science, Machine Learning .....Sept 2014 - Aug 2021  
**Boston University**, Boston, MA  
*Advisors:* Mark Crovella and Krishna Gummadi (Max Planck Institute)  
*Thesis:* *Tools for Responsible Decision Making in Machine Learning*
- ◇ **M.Sc.** Computer Science, Intelligent Systems .....2010 - 2013  
**University of Bonn**, Germany
- ◇ **B.Sc.** Computer Engineering, Software .....2006 - 2010  
**University of Isfahan**, Isfahan, Iran

**Experiences**

- ◇ **MiDAS Group at Boston University**, Boston, MA ..... Sept 2014 - present  
Graduate Research Assistant  
*Developed new tools for enhancing fairness, privacy, and explainability of learning systems.*  
*Developed data mining and graph mining techniques for analyzing single-cell genomics data.*
- ◇ **Max Planck Institute SWS**, Saarbrücken, Germany .....Feb 2019 - May 2019  
Internship  
*Worked on operationalizing data protection regulations for learning systems.*  
*Developed a bandit framework for auditing data minimization in prediction models.*
- ◇ **Fraunhofer IAIS**, Sankt Augustin, Germany .....Sept 2012 - May 2014  
Machine Learning Engineer  
*Implemented supervised and unsupervised learning algorithms for creating insight about and predicting user preferences in online recipe platforms.*
- ◇ **Signal Processing Group at University of Bonn**, Germany ... Sept 2011 - Jan 2012  
*Implemented matrix-factorization methods for detecting auditory objects.*

**Interests & Expertise**






- ◇ Recommender Systems ◇ Machine Learning for Biology, Finance, and Healthcare
- ◇ Reinforcement Learning ◇ Deep Learning ◇ Probabilistic Modeling
- ◇ Privacy, Fairness, and Explainability in AI

**Technical Skills**




- ◇ **Programming:** *proficient in* Python, *Experience with* MATLAB, Java, C++, SQL
- ◇ **Machine Learning:** NumPy, SciPy, Scikit-learn, PyTorch
- ◇ **Data Science:** Pandas, Seaborn, Matplotlib, Jupyter Notebook, NetworkX

## Publications


### Responsible Machine Learning

- ◇ “Auditing Black-box Prediction Models for Data Minimization Compliance”  
Bashir Rastegarpanah, Krishna P. Gummadi, Mark Crovella.  
(Under review, *NeurIPS 2021*)
- ◇ “Fair Inputs and Fair Outputs: The Incompatibility of Fairness in Privacy and Accuracy”  
Bashir Rastegarpanah, Mark Crovella, Krishna P. Gummadi.  
*FairUMAP 2020* 
- ◇ “Fighting Fire with Fire: Using Antidote Data to Improve Polarization and Fairness of Recommender Systems”  
Bashir Rastegarpanah, Krishna P. Gummadi, Mark Crovella.  
*WSDM 2019 (acceptance rate:16%)*  
- ◇ “Exploring Explanations for Matrix Factorization Recommender Systems”  
Bashir Rastegarpanah, Mark Crovella, Krishna P. Gummadi.  
*FATREC 2017*  

### Network Science

- ◇ “Decomposing Networks with Node Attributes into Connected Subnetworks”  
Bashir Rastegarpanah, Mark Crovella, Evimaria Terzi.  
(Under Submission)
- ◇ “Single-cell transcriptional networks in differentiating preadipocytes suggest drivers associated with tissue heterogeneity”  
Ramirez, Alfred K., Simon N. Dankel, Bashir Rastegarpanah, Weikang Cai, Ruidan Xue, Mark Crovella, Yu-Hua Tseng, C. Ronald Kahn, and Simon Kasif.  
*Nature Communications 11.1 (2020)*    
Press Coverage: AAAS, Medical Xpress
- ◇ “The Weibull as a Model of Shortest Path Distributions in Random Networks”  
Christian Bauckhage, Kristian Kersting, Bashir Rastegarpanah.  
*MLG 2013* 

### Social Computing and User Modeling

- ◇ “Collective Attention to Social Media Evolves According to Diffusion Models”  
Christian Bauckhage, Kristian Kersting, Bashir Rastegarpanah.  
*WWW 2014 (poster presentation)* 

## Reviewer

- ◇ WebConf 2020 ◇ TKDE2016

## Awards

- ◇ NSF Travel Award, Doctoral Consortium at WSDM 2019, Melbourne, Australia.
- ◇ Boston University Graduate School of Arts and Sciences fellowship, 2014.
- ◇ 3<sup>rd</sup> rank in RoboCup2008 Augmented Reality League, Suzhou, China, 2008.

## References

Available upon request.