# 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.
  *NeurIPS 2021, Spotlight presentation (< 3% acceptance rate).*
- "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.
- ◇ 3rd rank in RoboCup2008 Augmented Reality League, Suzhou, China, 2008.

**References**

Available upon request.