

Milad BAKHSHIZADEH

PERSONAL DATA

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CITIZENSHIP: Iran, Permanent Resident of U.S.

RESEARCH INTERESTS

high-dimensional statistics, random matrix theory (RMT), inverse problems, phase retrieval, concentration of measures, machine learning

ACADEMIC EMPLOYMENT

Postdoctoral Scholar	STATISTICS, Stanford University PI: David DONOHO Active Areas of Research: Approximate Message Passing (AMP), Structured Signal Recovery, Concentration of measures, Random Matrix Theory (RMT)	2021 - Present
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EDUCATION

Ph.D.	STATISTICS, Columbia University , New York Thesis: Phase Retrieval in the High-Dimensional Regime Advisor: Arian MALEKI Co-Advisor: Victor H. DE LA PENA	2021
MPhil	STATISTICS, Columbia University , New York Advisor: Arian MALEKI	2018
M.A.	MATHEMATICS, Sharif University of Technology , Tehran, Iran Advisor: Ali KAMALINEJAD Co-Advisors: Mehrdad SHAHSHAHANI , Kasra ALISHAHI	2014

PUBLICATIONS

Exponential tail bounds and Large Deviation Principle for Heavy-Tailed U-Statistics 2023

Milad Bakhshizadeh

Submitted, pp. 1-22

Sharp Concentration Results for Heavy-Tailed Distributions 2023

Milad Bakhshizadeh, Arian Maleki, Victor H. de la Pena

Information and Inference: A Journal of the IMA, pp. 1655-1685

Universality of Linearized Message Passing for Phase Retrieval with Structured Sensing Matrices 2022

Rishabh Dudeja, **Milad Bakhshizadeh**

IEEE Transactions on Information Theory, pp. 7545-7574

Using Black-box Compression Algorithms for Phase Retrieval 2020

Milad Bakhshizadeh, Arian Maleki, Shirin Jalali

IEEE Transactions on Information Theory, vol. 66, no. 12, Dec. 2020, pp. 7978-8001

Analysis of Spectral Methods for Phase Retrieval With Random Orthogonal Matrices 2020

Rishabh Dudeja, **Milad Bakhshizadeh**, Junjie Ma, Arian Maleki

IEEE Transactions on Information Theory, vol. 66, no. 8, Aug. 2020, pp. 5182-5203

A practical algorithm to calculate Cap Discrepancy 2020

Milad Bakhshizadeh, Ali Kamalinejad, Mina Latifi

(arxiv:2010.10454), pp. 1-24

Hanging Gardens Algorithm to Generate Decentralized Layouts for the Optimization of Urban Drainage Systems 2019

Amin E. Bakhshipour; **Milad Bakhshizadeh**; Ulrich Dittmer; Ali Haghghi

Journal of environmental management, vol. 249, pp. 04019034-1 - 04019034-12

Compressive Phase Retrieval of Structured Signals 2019

Milad Bakhshizadeh, Arian Maleki, Shirin Jalali

SPARS, Toulouse, France

Rigorous Analysis of Spectral Methods for Random Orthogonal Matrices 2019

Rishabh Dudeja, **Milad Bakhshizadeh**, Junjie Ma, Arian Maleki

SPARS, Toulouse, France

PUBLICATIONS (CONT.)

[A Graph-Theory Based Algorithm to Generate Decentralized Urban Drainage Layouts](#) 2018

Amin E. Bakhshipour, **Milad Bakhshizadeh**, Ulrich Dittmer, Wolfgang Nowak, Ali Haghighi
International Conference on Urban Drainage Modelling, pp. 633–637

[Compressive Phase Retrieval of Structured Signals](#) 2018

Milad Bakhshizadeh, Arian Maleki, Shirin Jalali
IEEE International Symposium on Information Theory (ISIT), pp. 2291-2295

In Preparation

Approximate message passing algorithms for structured singular vector estimation 2023+

Milad Bakhshizadeh, Rong Ma

Noisy matrix completion and matrix denoising, a new perspective 2023+

David Donoho, **Milad Bakhshizadeh**

CONFERENCE PAPERS AND PRESENTATIONS

Invited Talks

- Columbia University**, New York, NY 2023
Paper: [Exponential tail bounds and Large Deviation Principle for Heavy-Tailed U-Statistics](#)
Milad Bakhshizadeh
- UC Davis**, Davis, CA 2023
Paper: [Exponential tail bounds and Large Deviation Principle for Heavy-Tailed U-Statistics](#)
Milad Bakhshizadeh
- The University of Cambridge**, Cambridge, UK 2021
Title: A Near Optimal Method to Solve Phase Retrieval Problem for Structured Signals
- University of Minnesota**, Minneapolis, MN 2021
Title: A Near Optimal Method to Solve Phase Retrieval Problem for Structured Signals
- Nokia Bell-Labs**, Murray Hill, New Providence, NJ 2020
Title: A Near Optimal Method to Solve Phase Retrieval Problem for Structured Signals
- INFORMS**, Virtual Meeting 2020
Paper: [Sharp Concentration Results for Heavy-Tailed Distributions](#)
Milad Bakhshizadeh, Arian Maleki, Victor H. de la Pena

Conference Presentations

- Informs annual Meeting** , Phoenix, Arizona 2023
Paper: [Exponential tail bounds and Large Deviation Principle for Heavy-Tailed U-Statistics](#)
Milad Bakhshizadeh
- Joint Statistical Meeting (JSM)** , Toronto, Canada 2023
Paper: [Exponential tail bounds and Large Deviation Principle for Heavy-Tailed U-Statistics](#)
Milad Bakhshizadeh
- Inaugural CAMDA Conference**, Texas A&M University, College Station, Texas 2023
Paper: [Exponential tail bounds and Large Deviation Principle for Heavy-Tailed U-Statistics](#)
Milad Bakhshizadeh
- Northeast probability seminar**, CUNY Graduate Center, New York, New York 2020
Paper: [Sharp Concentration Results for Heavy-Tailed Distributions](#)
Milad Bakhshizadeh, Arian Maleki, Victor H. de la Pena
- SPARS**, Toulouse, France Poster 2019
Paper: [Compressive Phase Retrieval of Structured Signals](#)
Milad Bakhshizadeh, Arian Maleki, Shirin Jalali
- SPARS**, Toulouse, France 2019
Paper: [Rigorous Analysis of Spectral Methods for Random Orthogonal Matrices](#)
Rishabh Dudeja, **Milad Bakhshizadeh**, Junjie Ma, Arian Maleki
- IEEE International Symposium on Information Theory**, Vail, Colorado 2018
Paper: [Compressive Phase Retrieval of Structured Signals](#)
Milad Bakhshizadeh, Arian Maleki, Shirin Jalali
- Minghui Conference**, Columbia University, New York, NY 2018
Paper: [Compressive Phase Retrieval of Structured Signals](#)
Milad Bakhshizadeh, Arian Maleki, Shirin Jalali

AWARDS AND HONORS

Fellowship , Columbia University, U.S.	2015-2021
Rank 4 , National PhD entrance exam, Iran	2014
Gold Medal , International Scientific Olympiad (Mathematics), Iran	2012
First Prize , International Mathematical Competition for University Students (IMC), Bulgaria	2010
Silver Medal , International Mathematical Olympiad (IMO), Spain	2008
Gold Medal , National Mathematical Olympiad, Iran	2007
Gold Medal , National Mathematical Olympiad, Iran	2006

TEACHING EXPERIENCE

Instructor of Record

Introduction to Statistical Reasoning Columbia University	B.Sc. level	Fall 2018
Mathematics Olympiad	High School	2009 - 2015

Teaching Assistant

Columbia University

Calculus Based Introduction to Statistics	B.Sc. level	Fall 2020
Theoretical Statistical Inference II	Ph.D. level	Spring 2020
Theoretical Statistical Inference I	Ph.D. level	Fall 2019
Introduction to probability and statistical inference	M.A. level	Spring 2019
Statistical Inference	M.A. level	Summer 2018
Introduction to Statistics with calculus	B.Sc. level	Summer 2018
Introduction to Statistics	B.Sc. level	Spring 2018
Introduction to Statistics	B.Sc. level	Fall 2017
Time Series Analysis	M.A. level	Spring 2017
Linear Regression Models	M.A. level	Fall 2016
Statistical Inference	M.A. level	Spring 2016
Elementary Stochastic Processes	M.A. level	Fall 2015

Sharif University of Technology

Calculus I	B.Sc. level	Fall 2014
Topology	B.Sc. level	Spring 2014
Linear Algebra	B.Sc. level	Fall 2009

SERVICES

Review for Journals/Conferences

- Journal of Machine Learning Research (JMLR)
- AISTATS
- Conference on Learning Theory (COLT)
- International Conference on Machine Learning (ICML)
- IEEE International Symposium on Information Theory (ISIT)
- IEEE Transaction of Information Theory
- NeurIPS
- SPARS
- Electronic Journal of Statistics (EJS)

University services

Council member of Stanford University Postdoctoral Association (SURPAS) 2022 - 2023

Board member of the Iranian Student Association (ISA) at UC Davis 2021 - 2022

Last Update: October 17, 2023