ARMEEN TAEB

CONTACT INFORMATION

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RESEARCH INTERESTS

◇ Statistical Machine Learning, Convex Optimization, Model Selection, Latent-Variable Modeling, Graphical Modeling, Sustainability

EDUCATION

◇ California Institute of Technology, CA *Graduation: August 2019*

PhD Candidate in Electrical Engineering

Advisor: Prof. Venkat Chandrasekaran

Thesis: "Latent-variable modeling: inference, algorithms, and applications"

◇ University of Colorado at Boulder, CO *2009-2013*

B.Sc. in Electrical Engineering, Applied Mathematics

GPA : 3.98/4.00

Research Advisor: Prof. Shannon Hughes

◇ Rice University, TX *May 2012–Aug 2012*

Visiting Student Researcher in the DSP Laboratory

Host: Prof. Richard Baraniuk

AWARDS AND HONORS

◇ Caltech Resnick Institute Fellowship for Sustainability Research 2016-2018

◇ Caltech Electrical Engineering Graduate Fellowship 2013-2014

◇ NSF GRFP Honorable Mention 2013-2014

◇ Distinguished Senior in Electrical Engineering at University of Colorado Boulder

JOURNAL PUBLICATIONS

◇ **A. Taeb**, M. Turmon, A. Stuart and V. Chandrasekaran, "Structured Covariance Estimation with non-iid Data via the Whittle Matèrn Process", *In Preparation*

◇ **A. Taeb**, P. Shah, and V. Chandrasekaran, "Latent-Variable Graphical Model Selection for Generalized Linear Models", *In Preparation*

◇ **A. Taeb**, P. Shah, and V. Chandrasekaran (2018), "False Discovery and Its Control in Low-Rank Estimation", *In Revision at Royal Statistical Society Series B*

◇ **A. Taeb**, J.T. Reager, M. Turmon, and V. Chandrasekaran (2017), "A Statistical Graphical Model of the California Reservoir Network", *Water Resources Research*

◇ **A. Taeb** and V. Chandrasekaran (2017), "Interpreting Latent Variables in Factor Models via Convex Optimization ", *Mathematical Programming*

◇ H. Qi, **A. Taeb**, and S. Hughes (2012), "Visual Stylometry using Background Selection and Wavelet-HMT-based Fisher Information Distances for Attribution and Dating of Impressionist Paintings", *EURASIP Signal Processing*

BOOKS

◇ D. Sanz-Alonso, A. Stuart, **A. Taeb**, "Inverse Problems and Data Assimilation", draft at arXiv 1810.06191

CONFERENCE PRESENTATIONS

◇ SIAM Algebraic Geometry (2019), "False Discovery and Its Control in Low-Rank Estimation", *abstract + presentation*

◇ Information Theory and Applications (2019), "A Geometric Framework for Model Selection", *abstract + poster presentation*

◇ American Geophysical Union (2018), "Detection and Instrument Characterization Using Spatial Statistical Models", *abstract + poster presentation*

◇ International Congress on Environmental Modelling and Software (2018), "From Data Science to Hydrology, California Reservoirs During Drought", *abstract + presentation*

◇ Allerton Conference on Communication, Control, and Computing (2018), "False Discovery and its Control in Low-Rank Estimation", *paper + presentation*

◇ SIAM Optimization (2017), "Interpreting Latent Variables in Factor Models via Convex Optimization", *abstract + presentation*

◇ Allerton Conference on Communication, Control, and Computing (2016), "Interpreting Latent Variables in Factor Models via Convex Optimization", *paper + presentation*

◇ Signal Processing with Adaptive Sparse Structured Representations (2013), "Maximin Analysis of Message Passing Algorithms for Recovering Block Sparse Signals", *paper + presentation*

INVITED TALKS

◇ Department of Computer Science, Northeastern, MA *Dec 2018*

"False Discovery and Its Control in Low-Rank Estimation"

◇ Laboratory for Information and Decision Systems, MIT, MA *Dec 2018*

"False Discovery and Its Control in Low-Rank Estimation"

◇ Workshop on New Signal Models and their Information Content, Banff *Oct 2018*

"False Discovery and Its Control in Low-Rank Estimation"

◇ Statistics Seminar, University of Chicago, IL *Oct 2018*

"False Discovery and Its Control in Low-Rank Estimation"

◇ Seminar For Statistics: ETH Zürich, Zürich *Sept 2018*

"False Discovery and Its Control in Low-Rank Estimation"

◇ Wonderful Company HQ, Los Angeles *Aug 2018*

" Mathematical Rout to Drought: A Study of California Reservoirs"

◇ RAND Corporation, Los Angeles *July 2018*

"From Data Science to Hydrology, California Reservoirs During Drought"

◇ San Francisco Water Public Utilities Commission, San Francisco *May 2018*

"From Data Science to Hydrology, California Reservoirs During Drought"

TEACHING EXPERIENCE

◇ Summer School Lecturer, Università della Svizzera Italiana — *Summer 2018*
Co-Instructor (with Andrew Stuart): Inverse Problems & Data Assimilation

◇ Graduate Teaching Assistant, California Institute of Technology — *Fall 2017*
Head TA: Inverse Problems and Data Assimilation, *graduate course*
Overall teaching evaluation: 4.65/5

◇ Graduate Teaching Assistant, California Institute of Technology — *Spring 2017*
Head TA: Mathematical Statistics, *graduate course*
Overall teaching evaluation: 4.5/5

◇ Graduate Teaching Assistant, California Institute of Technology — *Fall 2016*
Head TA: Mathematical Optimization, *graduate course*
Overall teaching evaluation: 4.5/5

PROFESSIONAL EXPERIENCE

◇ Yahoo Inc.; Intern; Sunnyvale CA — *Summer 2017*
Project: False Discovery Control in Recommender Models
Developed and implemented an algorithm to control false discoveries in low-rank models for recommender systems

◇ Jet Propulsion Laboratory, NASA; Intern; Pasadena CA — *Summer 2015*
Project: A Statistical Graphical Model of the California Reservoir Network
Developed a state-wide statistical graphical model of 55 reservoirs in California
Presented at JPL's director meeting + press coverage by Caltech news

◇ National Institute of Standards and Technology; Intern; Boulder CO — *Summer 2010*
Project: Standardizing Volumetric Measurement of Clinical Tumors
Developed an image processing algorithm to mimic clinical tumor from CT data

PROFESSIONAL MEMBERSHIPS

◇ Institute for Operations Research and the Management Sciences (INFORMS) — *2018 – Present*

◇ Americal Geophysical Union (AGU) — *2018–Present*

◇ Society for Industrial and Applied Mathematics (SIAM) — *2017–Present*

SKILLS

◇ Programming Languages: Python, R

◇ Applications: Apache Spark, MATLAB, LaTeX, MS Office

◇ Operating Systems: MS Windows, MAC OS, Linux Ubuntu

SERVICE ACTIVITIES

◇ Area Director: Toastmasters International — *2018 - Present*
Collaborate with club members to create a high quality club

◇ Caltech YMCA Tutor — *2014 – 2016*
Mentor high school students in math and sciences