

# Shahana Ibrahim

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## EDUCATION

**Oregon State University** Corvallis, USA  
*PhD in Electrical and Computer Engineering*  
Sep 2018 - May 2023 (expected)  
**Current GPA** 4.0/4.0

**Oregon State University** Corvallis, USA  
*Masters in Electrical and Computer Engineering*  
Sep 2018 - Nov 2019  
**Overall GPA** 4.0/4.0

**Texas A&M University** College Station, USA  
*Masters in Electrical and Computer Engineering (Transferred)*  
Aug 2017 - May 2018  
**Overall GPA** 4.0/4.0

**National Institute of Technology, Calicut** Kerala, India  
*Bachelors in Electronics and Communication Engineering*  
Jun 2008 - May 2012  
**Overall GPA** 9.38/10.0

## ACADEMIC & PROFESSIONAL EXPERIENCE

**Oregon State University** Corvallis, USA  
*Research Assistant*  
Sep 2018 - Present

**NVIDIA** Santa Clara, USA  
*GPU Validation Intern*  
May 2018 - Aug 2018

**Texas A&M University** College Station, USA  
*Teaching Assistant*  
Dec 2017 - May 2018

**Texas Instruments** Bangalore, India  
*System Validation Engineer*  
Jul 2012 - Jun 2017

## SCHOLARLY WORKS

### Conference Papers

- C1. Shahana Ibrahim**, Xiao Fu, Rebecca Hutchinson, and Eugen Seo “*Under-Counted Tensor Completion with Neural Incorporation of Attributes*”, accepted at International Conference on Machine Learning, 2023
- C2. Tri Nguyen**, **Shahana Ibrahim**, and Xiao Fu, “*Deep Clustering with Incomplete Noisy Pairwise Annotations: A Geometric Regularization Approach*”, accepted at International Conference on Machine Learning, 2023
- C3. Shahana Ibrahim**, Tri Nguyen, and Xiao Fu, “*Deep Learning From Crowdsourced Labels: Coupled Cross-entropy Minimization, Identifiability, and Regularization*”, International Conference on Learning Representations, 2023

- C4.** **Shahana Ibrahim** and Xiao Fu, “*Crowdsourcing via Annotator Co-occurrence Imputation and Provable Symmetric Nonnegative Matrix Factorization*”, Proceedings of the 38th International Conference on Machine Learning, 2021
- C5.** Wenqiang Pu, **Shahana Ibrahim**, Xiao Fu, and Mingyi Hong, “*Fiber-Sampled Stochastic Mirror Descent For Tensor Decomposition with  $\beta$ -Divergence*”, IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2021
- C6.** **Shahana Ibrahim** and Xiao Fu, “*Learning Mixed Membership from Adjacency Graph via Systematic Edge Query: Identifiability and Algorithm*”, IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2021
- C7.** Lingyi Huang, Chunhua Deng, **Shahana Ibrahim**, Xiao Fu, Bo Yuan, “*VLSI Hardware Architecture of Stochastic Low-rank Tensor Decomposition*”, Asilomar Conference on Signals, Systems, and Computers, 2021
- C8.** **Shahana Ibrahim** and Xiao Fu, “*Recovering Joint PMF from Pairwise Marginals*”, Asilomar Conference on Signals, Systems, and Computers, 2020
- C9.** **Shahana Ibrahim**, Xiao Fu, Nikos Kargas, and Kejun Huang “*Crowdsourcing via Pairwise Co-occurrences: Identifiability and Algorithms*”, Advances in Neural Information Processing Systems, 2019

### Journal Papers

- J1.** Wenqiang Pu, **Shahana Ibrahim**, Xiao Fu, and Mingyi Hong, “*Stochastic Mirror Descent for Low-Rank Tensor Decomposition Under Non-Euclidean Losses*”, IEEE Transactions on Signal Processing, 2022
- J2.** **Shahana Ibrahim** and Xiao Fu, “*Recovering Joint Probability of Discrete Random Variables from Pairwise Marginals*”, IEEE Transactions on Signal Processing, 2021
- J3.** **Shahana Ibrahim** and Xiao Fu, “*Mixed Membership Graph Clustering via Systematic Edge Query*”, IEEE Transactions on Signal Processing, 2021
- J4.** **Shahana Ibrahim**, Xiao Fu, and Xingguo Li, “*On Recoverability of Randomly Compressed Tensors with Low CP Rank*”, IEEE Signal Processing Letters, 2020
- J5.** Xiao Fu, **Shahana Ibrahim**, Hoi-To Wai, Cheng Gao, and Kejun Huang, “*Block-Randomized Stochastic Proximal Gradient for Low Rank Tensor Factorization*”, IEEE Transactions on Signal Processing, 2020
- J6.** **Shahana Ibrahim**, Dileep Kalathil, Rene Sanchez, and Pravin Varaiya, “*Estimating Phase Duration for SPAT messages*”, IEEE Transactions on Intelligent Transportation Systems, 2019

### Workshop Papers

- W1.** **Shahana Ibrahim**, Xiao Fu, Rebecca Hutchinson, and Eugen Seo, “*Under-Counted Tensor Completion with Neural Network-based Side Information Learner*”, NeurIPS Women in Machine Learning Workshop, 2022
- W2.** **Shahana Ibrahim** and Xiao Fu, “*Stochastic Optimization for Coupled Tensor Decomposition with Applications in Statistical Learning*”, IEEE Data Science Workshop (DSW), 2019

## HONORS & AWARDS

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Travel Grant, NeurIPS Women in Machine Learning Workshop	2022
Area Chair, Women in Machine Learning Workshop, NeurIPS	2022
Selected Participant of Progress Workshop, ICIP	2020
Travel Grant, NeurIPS Conference	2019
NSF Travel Grant, IEEE Data Science Workshop	2019
ECEN Departmental Merit Scholarship, Texas A&M University	2017
Best Paper Award, Texas Instruments India Technical Conference	2017
Bachelors Second Rank, Electronics and Communication Engineering, NIT Calicut	2012
PM Foundation Fellowship	2008

## TECHNICAL TALKS

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Under-Counted Tensor Completion with Neural Incorporation of Attributes <i>SIAM OP23, Seattle, WA</i>	<i>Jun 2023</i>
Learning from Noisy Labels with Theoretical Guarantees <i>Invited Talk, CSE, University of Texas, Arlington, TX</i>	<i>Mar 2023</i>
Crowdsourcing via Annotator Co-occurrence Imputation & Provable Symmetric Nonnegative Matrix Factorization <i>ICML, Virtual Talk</i>	<i>Jul 2021</i>
Learning Mixed Membership from Adjacency Graph via Systematic Edge Query: Identifiability and Algorithm <i>ICASSP, Virtual Talk</i>	<i>Jun 2021</i>
Recovering Joint PMF from Pairwise Marginals <i>Asilomar Signal Processing Conference, Virtual Talk</i>	<i>Nov 2020</i>
Stochastic Optimization for Coupled Tensor Decomposition with Applications in Statistical Learning <i>IEEE Data Science Workshop, Minnesota, MN</i>	<i>Jun 2019</i>
Crowdsourcing via Pairwise Co-occurrences: Identifiability & Algorithms <i>Artificial Intelligence Seminar, Oregon State University</i>	<i>Mar 2019</i>
Crowdsourcing via Pairwise Co-occurrences: Identifiability & Algorithms <i>Signal Processing Seminar, Oregon State University</i>	<i>Feb 2019</i>

## TEACHING

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Guest Lecturer, ECE586/AI586 Applied Matrix Analysis <i>EECS, Oregon State University, Corvallis, OR</i>	<i>Jun 2023</i>
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## STUDENT ADVISING & MENTORING

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Thesis Committe Member <i>Daniel Grey Wolnick</i> <i>Bachelor of Science in Computer Science</i> <i>Oregon State University</i>	<i>2022 - 2023</i>
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Research Mentor  
*Ezra Baker*  
*Bachelor of Science in Mathematics & Computer Science*  
*Oregon State University* 2022

Research Mentor  
*Grace Strid*  
*Bachelor of Science in Mathematics*  
*Oregon State University* 2020

## COURSES

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Intelligent Agents & Decisions	Spring 2020
Contemporary Energy Applications	Fall 2019
Nonlinear Optimization	Spring 2019
Stochastic Signals & Systems	Winter 2019
Deep Learning, Oregon State University	Winter 2019
Estimation, Filtering, and Detection, Oregon State University	Fall 2018
Linear Systems, Oregon State University	Fall 2018
Stochastic Systems, Texas A&M University	Spring 2018
Introduction to Classical Analysis, Texas A&M University	Spring 2018
Probability for Engineering Decisions, Texas A&M University	Fall 2017
Convex Optimization, Texas A&M University	Fall 2017
Linear Network Analysis, Texas A&M University	Fall 2017

## REVIEWING

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Reviewer, IEEE Transactions on Pattern Analysis and Machine Intelligence	2023
Reviewer, EUSIPCO	2023
Reviewer, IEEE Statistical Signal Processing Workshop	2023
Reviewer, IEEE Transactions of Signal Processing	2023
Reviewer, AISTATS	2023
Auxilliary Reviewer, ICASSP	2023
Reviewer, AISTATS	2022
Reviewer, Journal of Optimization Theory & Applications	2022
Reviewer, Journal of Selected Topics in Signal Processing	2021
Auxilliary Reviewer, ICASSP	2021
Reviewer, AISTATS	2019
Auxilliary Reviewer, IEEE MLSP Worskshop	2019

## OUTREACH

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Student Member  
*Women in Machine Learning* 2021 - present

Student Member  
*IEEE Signal Processing Society* 2019 - present

Program Co-ordinator  
*Texas Instruments Community Service Forum* 2013 - 2017

## REFERENCES

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### **Dr. Xiao Fu**

*Assistant Professor*  
*School of Electrical Engineering & Computer Science*  
*Oregon State University, Corvallis, OR 97331*

✉ [xiao.fu@oregonstate.edu](mailto:xiao.fu@oregonstate.edu)  
☎ 541-737-3925

### **Dr. Rebecca Hutchinson**

*Associate Professor*  
*Fisheries & Wildlife, Computer Science*  
*Oregon State University, Corvallis, OR 97331*

✉ [rebecca.hutchinson@oregonstate.edu](mailto:rebecca.hutchinson@oregonstate.edu)  
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### **Dr. Mingyi Hong**

*Associate Professor*  
*Department of Electrical & Computer Engineering*  
*University of Minnesota, Minneapolis, MN 55455*

✉ [mhong@umn.edu](mailto:mhong@umn.edu)  
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### **Dr. Raviv Raich**

*Associate Professor*  
*School of Electrical Engineering & Computer Science*  
*Oregon State University, Corvallis, OR 97331*

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### **Dr. Dileep Kalathil**

*Assistant Professor*  
*Department of Electrical & Computer Engineering*  
*Texas A&M University, College Station, TX 77843*

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