

# 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 2018 - May 2018

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

## CONFERENCE PUBLICATIONS

- C1.** Shahana Ibrahim, Tri Nguyen, and Xiao Fu, “Deep Learning From Crowdsourced Labels: Coupled Cross-entropy Minimization, Identifiability, and Regularization”, submitted to International Conference on Learning Representations, 2023
- C2.** 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
- C3.** 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

- C4. 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
- C5.** 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
- C6. Shahana Ibrahim** and Xiao Fu, “*Recovering Joint PMF from Pairwise Marginals*”, Asilomar Conference on Signals, Systems, and Computers, 2020
- C7. 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 PUBLICATIONS

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- 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

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- 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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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>

## 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 - present</i>
Research Mentor <i>Ezra Baker</i> <i>Bachelor of Science in Mathematics &amp; Computer Science</i> <i>Oregon State University</i>	<i>2022</i>
Research Mentor <i>Grace Strid</i> <i>Bachelor of Science in Mathematics</i> <i>Oregon State University</i>	<i>2020</i>

## 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 Unuversity	Spring 2018
Introduction to Classical Analysis, Texas A&M University	Spring 2018

Probability for Engineering Decisions, Texas A&M University  
Convex Optimization, Texas A&M University  
Linear Network Analysis, Texas A&M University

Fall 2017  
Fall 2017  
Fall 2017

## REVIEWING

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Reviewer, AISTATS	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 <i>Women in Machine Learning</i>	<i>2021 - present</i>
Student Member <i>IEEE Signal Processing Society</i>	<i>2019 - present</i>
Program Co-ordinator <i>Texas Instruments Community Service Forum</i>	<i>2013 - 2017</i>
Student Co-ordinator <i>Pain &amp; Palliative Care Unit, NIT Calicut</i>	<i>2009 - 2012</i>

## 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)  
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### Dr. Raviv Raich

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

✉ [raich@eecs.oregonstate.edu](mailto:raich@eecs.oregonstate.edu)  
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### Dr. Rebecca Hutchinson

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

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### Dr. Dileep Kalathil

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

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