ABISHEK SANKARARAMAN

EDUCATION

The University of Texas at Austin
Ph.D. in Electrical and Computer Engineering   Sep. 2013 - Sep 2019

- Thesis: Spatial Stochastic Models for Network Analysis
- Advisor: François Baccelli

Indian Institute of Technology, Madras
B.Tech and M.Tech in Electrical Engineering, Minor in Mathematics   Aug 2008 - May 2013

EMPLOYMENT

Amazon Web Services (AWS), AI Labs   Santa Clara, CA
Senior Applied Scientist   Jul 2023 - Present
Applied Scientist   Aug 2020 - May 2023

- Anomaly detection, online algorithms, change detection, heavy tails,
- Lead scientist in launching GuardDuty for RDS Protection

University of California, Berkeley   Berkeley,CA
Postdoctoral Researcher, Advisor: Venkat Anantharam   Sep 2019 - Jul 2020

Simons Center for Network Mathematics   Austin, TX
Graduate Research Assistant. Advisor: François Baccelli   Jan 2014-Aug 2019

JOURNAL PAPERS

Model Selection for Generic Contextual Bandits,
Avishek Ghosh, Abishek Sankararaman and Kannan Ramachandran
IEEE Transactions on Information Theory, 2023 *To appear.*

Multi-Agent Low-Dimensional Linear Bandits
Ronshee Chawla, Abishek Sankararaman, Sanjay Shakkottai
IEEE Transactions on Automatic Control, 2022.

Ergodicity and steady state analysis for Interference Queueing Networks
Sayan Banerjee, Abishek Sankararaman,
AMS Contemporary Mathematics: Special volume in honor of M. M. Rao, 2021.

Stability and Scalability of Blockchain Systems
Aditya Gopalan, A. Sankararaman, Anwar Walid and Sriram Vishwanath
Proceedings of the ACM on Measurement and Analysis of Computing Systems (PO-MACS), June 2020.

Community Detection on Euclidean Random Graphs
A.Sankararaman, Emmanuel Abbe and François Baccelli
Information and Inference : A journal of the IMA, June 2020.

ComHapDet: A Spatial Community Detection Algorithm for Haplotype Assembly
A. Sankararaman, Haris Vikalo and François Baccelli
BMC Genomics, 2020.

Social Learning in Multi-Agent Multi-Armed Bandit Problem
A. Sankararaman, Ayalvadi Ganesh and Sanjay Shakkottai
Proceedings of the ACM on Measurement and Analysis of Computing Systems (PO-MACS), Dec 2019.

Interference Queueing Networks on Grids
A. Sankararaman, François Baccelli and Sergey Foss
Annals of Applied Probability, October 2019, Vol. 29, No. 5, 2929-2987.

Spatial Birth-Death Wireless Networks
A.Sankararaman and François Baccelli
IEEE Transactions on Information Theory, June 2017, 63 (6), 3964-3982.

Online heavy-tailed change point detection,
Abishek Sankararaman, Balakrishnan (Murali) Narayanaswamy
UAI 2023 *(Acceptance Rate ~ 30%)*

FITNESS (Fine Tune on New and Similar Samples) to detect online anomalies on streams with drift and outliers,
Abishek Sankararaman, Balakrishnan (Murali) Narayanaswamy, Vikramank Singh, Zhao Song
ICML 2022 *(Acceptance Rate ~ 19%)*

Breaking the $\sqrt{T}$ Barrier: Instance Independent Logarithmic Regret for Contextual Bandits,
Avishek Ghosh, Abishek Sankararaman,
ICML 2022 *(Acceptance Rate ~ 19%)*

Multi-agent Heterogeneous Stochastic Linear Bandits,
Avishek Ghosh, Abishek Sankararaman (Joint First Authors) and Kannan Ramachandran
ECML-PKDD 2022 *(Acceptance Rate ~ 27%)*

Beyond $\log^2(T)$ Regret in Decentralized Matching Bandits,
Soumya Basu, Karthik Abinav Sankararaman and Abishek Sankararaman,
ICML 2021 *(Acceptance Rate ~ 21%)*

Dominate or Delete: Decentralized Competing Bandits in Serial Dictatorship,
Abishek Sankararaman, Soumya Basu (Joint First Authors) and Karthik Abinav Sankararaman
AISTATS 2021 *(Acceptance Rate ~ 27%)*

Problem-Complexity Adaptive Model Selection for Stochastic Linear Bandits,
Avishek Ghosh, Abishek Sankararaman and Kannan Ramachandran
AISTATS 2021 *(Acceptance Rate ~ 27%)*

The Gossiping Insert-Eliminate Algorithm for Multi Agent Multi Armed Bandits
Ronshee Chawla*, Abishek Sankararaman*, Ayalvadi Ganesh and Sanjay Shakkottai
AISTATS 2020 [Joint First Authors] *(Acceptance Rate ~ 20%)*

Social Learning in Multi-Agent Multi-Armed Bandit Problem
Abishek Sankararaman, Ayalvadi Ganesh and Sanjay Shakkottai
ACM SIGMETRICS 2020 *(Acceptance Rate ~ 20%)*

Stability and Scalability of Blockchain Systems
Aditya Gopalan, Abishek Sankararaman, Anwar Walid and Sriram Vishwanath
ACM SIGMETRICS 2020 *(Acceptance Rate ~ 20%)*

ComHapDet: A Spatial Community Detection Algorithm for Haplotype Assembly
Abishek Sankararaman, Haris Vikalo and François Baccelli
ACM CNB-MAC 2019. *(Acceptance Rate ~ 30%)*

Community Detection on Euclidean Random Graphs
Abishek Sankararaman, Emmanuel Abbe and François Baccelli
ACM-SIAM Symposium on Discrete Algorithms (SODA), 2018. *(Acceptance Rate ~ 20%)*

Spatial Birth-Death Wireless Networks
Abishek Sankararaman and François Baccelli
Allerton, October 2016. *(Acceptance Rate ~ 35%)*

Performance-Oriented Association in Large Cellular Networks with Technology Diversity
Abishek Sankararaman, Jeong woo Cho and François Baccelli
International Teletraffic Congress (ITC), 2016. *(Acceptance Rate ~ 25%)*

CSMA k-SIC: A class of distributed MAC protocols and their performance evaluation
Abishek Sankararaman and François Baccelli
IEEE Conference on Computer Communications (INFOCOM), 2015. *(Acceptance Rate ~ 19%)*

Congestion Control of Smart Distribution Grids using State Estimation
Abishek Sankararaman and Balakrishnan Narayanaswamy
IEEE COMSNETS, E6 Workshop, 2013. *(Acceptance Rate ~ 40%)*

AWARDS	• Student Leadership Award, UT Austin, 2018.	
	• Conference Travel Awards - ACM SODA 2018, NeurIPS 2018, Stochastic Networks 2016, 2018	
	• DAAD WISE Scholar, 2011	

TEACHING AND MENTORSHIP	**Advanced Probability - Inference and Learning**, Teaching Assistant,	Spring 2018
	Probability and Stochastic Processes (Graduate), Teaching Assistant,	Fall 2018
	Duties include holding office hours, setting homework and exam problems.	
	Undergraduate Student Mentor - Mixing Times for Random Walks on Groups	Spring 2018
	Research supervisor for an undergraduate student project in the Mathematics Department in Probability	

INVITED AND CONTRIBUTED TALKS

- *Interference Queuing Networks on Grids*

Talk at INFORMS Applied Probability Society, Brisbane, Australia.	Jul 2019
Talk at UNC-Chapel Hill Probability Seminar, Chapel Hill, NC.	Feb 2019
Talk at Austin-TAMU Probability Seminar, Austin, TX.	May 2018
Talk at Heriot-Watt University, Edinburgh UK	Feb 2018

- *Community Detection on Euclidean Random Graphs*

Talk at AMS Special Session on Stochastic Spatial Models, at the 2020 Joint Mathematics Meeting, Denver CO	Jan 2020
Talk at MIT Research Laboratory of Electronics, Cambridge MA	Dec 2018
Talk at University of Massachusetts, Amherst, MA	Dec 2018
Talk at Indian Institute of Technology Madras, Chennai	Jan 2018
Talk at ACM-SIAM SODA Conference, New Orleans, LA	Jan 2018
Talk at The University of Texas at Austin	May 2017

- *Spatial Birth Death Process on the Continuum*

Talk at Indian Institute of Technology Madras, Chennai	Jan 2017
Talk at Princeton University	Nov 2016
Talk at Allerton Conference on Communication Control and Computing	Oct 2016
Talk at INRIA - Ecole Normale Supérieure, Paris	Sep 2016

- *Technology Diversity - A Framework for Base Station Association in Large Cellular Networks*

Talk at 28th, International Teletraffic Congress (ITC-28), Würzburg, Germany	Sep 2016

- *CSMA k-SIC: A Class of MAC Protocols*

Talk at IEEE INFOCOM, Hong Kong	May 2015

PROFESSIONAL SERVICES

• Reviewer for Journal of Applied Probability (JAP),	2019-2020
• Organizer for Random Structures Seminar at UT Austin Math dept.	2017-2019
• Reviewer for IEEE ISIT (International Symposium on Information Theory)	2019
• Reviewer for Queueing Systems Journal	2019
• Reviewer for ACM-SIAM SODA (Symposium on Discrete Algorithms)	2019
• Reviewer for IEEE FOCS (Foundations of Computer Science)	2018
• Reviewer for SpaSWIN (Spatial Stochastic Models for Wireless Networks)	2018
• Reviewer for Performance Evaluation	2017
• Reviewer for IEEE Transactions on Information Theory	2016-2019
• Reviewer for IEEE Transactions on Wireless Communications	2015-2019

GRADUATE COURSEWORK	**Machine Learning** : Large Scale Optimization, Deep Learning (Coursera), Convolutional and Sequence Models (Coursera), Statistical Learning Theory, Online Learning
	Mathematics : Real Analysis, Abstract Algebra, Probability, Stochastic Processes, Mixing Times, Statistics, Estimation, Control, Coding Theory
	Algorithms : Randomized Algorithms, Network Algorithms, Random Graphs