

ABISHEK SANKARARAMAN

- EDUCATION **The University of Texas at Austin**
Ph.D. (Applied Mathematics and Computer Science) Sep. 2013 - Sep 2019
- Thesis: Spatial Stochastic Models for Network Analysis
- 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)** Santa Clara, CA
Senior ML Scientist Jul 2023 - Present
Applied Scientist Aug 2020 - May 2023
- Key Words: Anomaly detection, online algorithms, change detection, heavy tails.
 - Lead scientist in the conceptualization, design, implementation and launch of [GuardDuty for RDS Protection](#) generating X -MM \$ monthly revenue within a few months of launch.
 - Develop algorithms for non-stationary, real time machine learning, with product applications to new services in security and database optimization.
 - Actively publish first-author papers in top ML conferences.
- University of California, Berkeley** Berkeley, CA
Postdoctoral Researcher, Advisor: [Venkat Anantharam](#) Sep 2019 - Jul 2020
- Devised and led a research program on multi-agent reinforcement learning resulting in multiple, first author papers in top ML conferences.
 - Mentored PhD students for their thesis on related topics.
- JOURNAL PAPERS [Decentralized Competing Bandits in Non-Stationary Matching Markets](#),
Avishek Ghosh, [Abishek Sankararaman](#), Kannan Ramchandran, Tara Javidi, Arya Mazumdar
IEEE Transactions in Information Theory, 2024.
- [Model Selection for Generic Contextual Bandits](#),
Avishek Ghosh, [Abishek Sankararaman](#) and Kannan Ramchandran
IEEE Transactions on Information Theory, 2023.
- [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.

PEER-REVIEWED
CONFERENCE
PAPERS

[Online robust non-stationary estimation](#),

[Abishek Sankararaman](#), Balakrishnan (Murali) Narayanaswamy

NeurIPS 2023 (*Acceptance Rate 26%*)

[Double Auctions with Two-sided Bandit Feedback](#) ,

Soumya Basu, [Abishek Sankararaman](#)

NeurIPS 2023 (*Acceptance Rate 26%*)

[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