Aditya Krishnan

Ph.D. Student in Computer Science, Johns Hopkins University
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Research Interests

Sketching & streaming, coreset methods, numerical linear algebra, dimensionality reduction, scalable machine learning, theory of algorithms, optimization

Education

Johns Hopkins University, Whiting School of Engineering — 2018 - 2022
Ph.D. in Computer Science
Advisor: Vladimir Braverman

Carnegie Mellon University, School of Computer Science — 2017 - 2018
M.S. in Computer Science
Advisor: Anupam Gupta
Thesis: Pricing Online Metric Matching Algorithms on Trees

Carnegie Mellon University, School of Computer Science — 2013 - 2017
B.S. in Computer Science and Minor in Engineering Studies

Experience

Science Intern, Pinecone — Summer 2021
Advisor: Edo Liberty, CEO and Founder of Pinecone
Designed and implemented a novel, product quantization based, algorithm for vector similarity search.

Publications and Preprints

Authors appear in alphabetical order as in the tradition of mathematics and theoretical computer science unless otherwise mentioned. Where applicable '' denotes equal contribution of authors.*

Projective Clustering Product Quantization, with Edo Liberty. *2021. In submission.*

Sublinear Time Spectral Density Estimation, with Vladimir Braverman and Christopher Musco. *ACM Symposium on Theory of Computing (STOC), 2022.*

Lifelong Learning with Sketched Structural Regularization, Haoran Li, A. Krishnan*, Jingfeng Wu*, Soheil Kolouri*, Praveen K. Pilly and Vladimir Braverman. *Asian Conference on Machine Learning (ACML), 2021.*

Near-Optimal Entrywise Sampling of Numerically Sparse Matrices, with Vladimir Braverman, Robert Krauthgamer, and Shay Sapir. *Conference on Learning Theory (COLT). PMLR, 2021.*

Schatten Norms in Matrix Streams: Hello Sparsity, Goodbye Dimension, with Vladimir Braverman, Robert Krauthgamer, and Roi Sinoff. *International Conference on Machine Learning (ICML), 2020.*

Competitively Pricing Parking in a Tree, with Max Bender, Jacob Gilbert, and Kirk Pruhs. *Conference on Web and Internet Economics (WINE), 2020.*

On Sketching the q to p Norms, with Sidhanth Mohanty and David P. Woodruff. *International Conference on Approximation Algorithms for Combinatorial Optimization Problems (APPROX), 2018.*

Awards

JHU MINDS TRIPODS Data Science Fellowship — Summer 2022
JHU Computer Science Department Fellowship — 2018 - 2019

Talks

Sublinear Time Spectral Density Estimation
STOC 2022, Rome, Italy — June 2022
JHU CS Theory Seminar, Baltimore — April 2022

Schatten Norms in Matrix Streams: The Role of Sparsity
ICML 2020, Online — Jul 2020
JHU CS Theory Seminar, Baltimore — Feb 2020

Pricing Online Metric Matching Algorithms on Trees
CMU, Pittsburgh — May 2018

Teaching

Teaching Assistant
Introduction to Algorithms (JHU) Fall '19, Spring '20, Spring '22
Approximation Algorithms (JHU) Spring '21

Service

Seminar Co-Organizer
JHU Theory Seminar Fall '21, Spring '22

Conference Reviewer
NeurIPS 2022, ICML 2022, NeurIPS 2021, ICML 2021, STOC 2021, SODA 2021, RSEML 2021, SOSA 2020, PODS 2020, CSR 2019

Relevant Coursework

JHU: Parallel Programming, Cloud Computing

CMU: Algorithms for Big Data, Advanced Algorithms, Graduate Artificial Intelligence, Distributed Systems, Graph Theory

Skills

Python, LaTeX, C, Java

References

Edo Liberty, CEO and Founder, Pinecone
edo@edoliberty.com

Christopher Musco, Assistant Professor, New York University
cmusco@nyu.edu

Vladimir Braverman, Associate Professor, Johns Hopkins University
vova@cs.jhu.edu