Shweta Jain

Phone: +1 (831) 419 3920 | Email: sjain12@ucsc.edu | http://people.ucsc.edu/~sjain12/

Research Interests

Randomized and approximation algorithms, graph mining, sublinear algorithms, algorithms for massive data

Education

2014–2020 Ph.D., Computer Science, University of California, Santa Cruz
Thesis Title: Counting cliques in real-world graphs
Advisor: Prof. Seshadhri Comandur

2012–2013 M.S., Computer Science, University of Chicago

2005–2009 B.E., Computer Engineering, Pune Institute of Computer Technology (PICT)
Thesis Title: Space Maps in Ext4

Selected Honors and Awards

2020 Best Paper Award at WSDM, 2020

2019 Best Poster Award, Foundations of Data Science Workshop, GeorgiaTech, Atlanta

2018 BSOE Dissertation Year Fellowship, 2018-19

2017 Best Paper Award at WWW, 2017

2014 UC Santa Cruz Regents' Fellowship, 2014

2010 Best Alumni Research (PICT), 2010

Publications

[1] **Jain, S**., Seshadhri, C., The power of pivoting for exact clique counting. To appear in the 13th ACM International Conference on Web Search and Data Mining (WSDM), 2020. **Winner of Best Paper Award**.

[2] **Jain, S**., Seshadhri, C., Provably and Efficiently Approximating Near-cliques using Turán Shadow: PEANUTS. To appear in The Web Conference (formerly WWW), 2020.

[3] Nassar, H., Gleich, D., Benson, A., **Jain, S**. and Kennedy, C., Using cliques with higher-order spectral embeddings improves graph visualizations. To appear in The Web Conference (formerly WWW), 2020.

[4] Eden, T., **Jain, S**., Pinar, A., Ron D., Seshadhri, C., Provable and practical approximations for the degree distribution using sublinear graph samples. In The Web Conference (formerly WWW), 2018.

[5] **Jain, S**., Seshadhri, C., A Fast and Provable Method for Estimating Clique Counts Using Turán's Theorem. In 26th International Conference on World Wide Web (WWW), 2017. **Winner of Best Paper Award.**

[6] Kadekodi, S., **Jain, S**., Taking Linux Filesystems to the Space Age: Space Maps in Ext4. In Ottawa Linux Symposium, 2010.

Work Experience

2016	**Summer Intern, Sandia National Labs**, Livermore, CA (Mentor: Ali Pinar) Developed an algorithm for estimating the degree distribution of a graph by simulating edge sampling using vertex sampling. Paper published at The Web Conference, 2018.
2013	**Visiting Pre-doctoral Fellow, Northwestern University** (Mentor: Prof. Jason Hartline) Studied the structural properties of revenue-optimal mechanisms for a multi-dimensional unit-demand agent, including variants with supply and allocation constraints.
2011–2012	**Associate Engr., Oneirix Engineering Labs Pvt. Ltd.**, Pune, India (Mentor: Udayan Kanade) As part of the Computer Science Research Group, work included simulating optical phenomena including scattering and fluorescence using the Monte Carlo method, writing a nonlinear static equilibrium solver and performing spline based shape optimization of mechanical parts, and creating tools to manipulate huge image datasets in real time.

Invited Talks

2020	The Power of Pivoting for Exact Clique Counting - Paper presentation at WSDM, 2020 at Houston, TX, USA
2019	An $O(3^{\frac{n}{3}})$ algorithm for clique counting - Talk at Theory of Computing Associated - Silicon Valley (TOCA-SV)
2019	Estimating degree distribution - Talk at Stanford Theory Lunch
2018	Turán Shadow and its Extensions - Talk at Purdue University
2018	Applications of Sampling in Graphs - Talk at LIP6, Sorbonne University, Paris, France
2018	Estimating Degree Distribution - Paper presentation at The Web Conference (formerly WWW), 2018 at Lyon, France
2018	Estimating Degree Distribution - Student talk at Theory of Computing Associated - Silicon Valley (TOCA-SV) at Google
2017	Clique Counting - Student talk at TOCA-SV @ Google
2017	Clique Counting - Paper presentation at the 26th International Conference on World Wide Web (WWW)
2017	Clique Counting - Poster presentation at Symposium on the Theory of Computing (STOC)
2016	Clique Counting - Student talk at Women in Theory (WIT)

Teaching Assistance

2015	CMPS101, Algorithms and Abstract Data Types, University of California, Santa Cruz
2017	CMPS12B/M, Introduction to Data Structures, University of California, Santa Cruz

Technical Skills

Programming	C, C++, Java, JavaScript, Python
Applications	Latex, Matlab, Gurobi
Databases	Microsoft SQL Server, Oracle
Platforms	Linux, Microsoft Windows