Ramya Korlakai Vinayak

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Education

California Institute of Technology 2013 – Sept 2017
Ph.D. in Electrical Engineering.
Advisor: Prof. Babak Hassibi.

California Institute of Technology 2011–2013
M.S. in Electrical Engineering, GPA: 4.1/4.0.

Indian Institute of Technology Madras 2007–2011
Bachelor of Technology, GPA: 9.6/10.0 (Major) and 9.5/10.0 (overall).
Major: Electrical Engineering, Minor: Physics.

Awards and Scholarships

- **Invited Participant at Rising Stars in EECS, MIT**, 2015.
- **Schlumberger Foundation Faculty for the Future Fellowship**, 2013-2015.
- **K. Srinivasan and Indira Srinivasan Prize**, for the best cumulative performance in Humanities and Social Sciences courses, 2011.
- **Swati Jayalakshmi Memorial Award**, for the best academic record at the end of pre-final semester in B.Tech program, 2011.
- **IITM Certificate of Academic Distinction**, 2010.
- **Indian Academy of Sciences Summer Research Fellowship**, Summer 2010.
- **OPJEMS Scholarship**, awarded by the OP Jindal Group of Industries (India) for outstanding performance in academics and leadership, 2008.
- **KVPY Fellowship**, (Young Researcher Fellowship) awarded by Indian Institute of Science, 2005.
- **NTSE Scholarship**, awarded by National Council of Education, Research & Teaching, India, 2005.

Publications

Peer-reviewed Conferences

- **R. K. Vinayak**, W. Kong, G. Valiant, S. M. Kakade, "Maximum Likelihood Estimation for Learning Populations of Parameters," *The 36th International Conference on Machine Learning* (*ICML*), 2019, Long Beach, CA.
- G. Cadamuro, **R. K. Vinayak**, J. Blumenstock, S. M. Kakade, J. Shapiro, "The Illusion of Change: Correcting Bfor Bias when Inferring Changes in Sparse, Societal-Scale Data," *The 30th Annual Web Conference* (*WWW*), 2019, San Francisco, USA.
- **R. K. Vinayak**, T. Zrnic, B. Hassibi, "Tensor-Based Crowdsourced Clustering via Triangle Queries," *The 42nd IEEE International Conference on Acoustics, Speech, and Signal Processing* (*ICASSP*), 2017, New Orleans, USA.
- **R. K. Vinayak**, B. Hassibi, "Crowdsourced Clustering: Querying Edges vs Triangles," *The 30th Conference on Neural Information Processing Systems* (*NIPS*), 2016, Barcelona, Spain.
- **R. K. Vinayak**, B. Hassibi, "Similarity Clustering in the Presence of Outliers: Exact Recovery via Convex Program," *IEEE International Symposium on Information Theory* (*ISIT*), 2016, Barcelona,

Spain.

- **R. K. Vinayak**, S. Oymak, B. Hassibi, "Graph Clustering With Missing Data: Convex Algorithms and Analysis," *The 28th Conference on Neural Information Processing Systems* (*NIPS*), 2014, Montreal, Canada..
- **R. K. Vinayak**, S. Oymak, B. Hassibi, "Sharp Performance Bounds for Graph Clustering via Convex Optimization," *The 39th IEEE International Conference on Acoustics, Speech, and Signal Processing* (*ICASSP*), 2014, Florence, Italy..

Workshops

- **R. K. Vinayak**, B. Hassibi, "Clustering by Comparison: Stochastic Block Model for Inference in Crowdsourcing," *Workshop on Crowdsourcing and Machine Learning, International Conference on Machine Learning* (*ICML Workshop*), 2015, Lille, France.

Teaching and Mentorship Experience

Teaching Experience

1. **Stochastic Signal Processing** (Instructor: Prof. Babak Hassibi) Spring 2016
   Graduate Teaching Assistant, California Institute of Technology.
   (*TA Evaluation Rating: 4.5/5.0*)
2. **Advanced Algorithms** (Instructors: Prof. Thomas Vidik, Prof. Katrina Ligett) Spring 2015
   Graduate Teaching Assistant, California Institute of Technology.
   (*TA Evaluation Rating: 5.0/5.0*)
3. **Introduction to Stochastic Processes and Modeling** (Instructor: Prof. Joel Tropp) Fall 2012
   Graduate Teaching Assistant, California Institute of Technology.
   (*TA Evaluation Rating: 5.0/5.0*)

Mentorship Experience

1. Mentee: Tijana Zrnic (Junior), University of Novi Sad, Novi Sad, Serbia. Summer 2016
   Project: "Tensor Factorization Based Algorithms for Clustering via Crowdsourcing."
   Graduate Student Mentor
   Summer Undergraduate Research Program, California Institute of Technology.
2. Mentee: Berk Özdalyan (Sophomore), California Institute of Technology. Summer 2015
   Project: "Randomized Methods for Large Scale Convex Clustering."
   Graduate Student Mentor
   Summer Undergraduate Research Program, California Institute of Technology.

Service and Leadership Experience

- Served as a member in the Advisory Board for Women Mentoring Women (WMW) Program, Caltech Center for Diversity (2014-2016).
- Organized a talk on "Unconcious Bias" in the Departments of Electrical Engineering and Computer Science at Caltech by inviting Prof. Joan Schmelz, the Chair of the American Astronomical Society's Committee on the Status of Women in Astronomy (2014).
- Organized informal lean-in circles for small groups of high school girls (from around Pasadena area) through Caltech Y in 2014, where we discussed topics about confidence, leadership and participation of girls in STEM fields.

Work Experience

Paul G. Allen School of CSE, University of Washington, Seattle.
Research Associate *Oct 2017–present*

California Institute of Technology, Pasadena.
Graduate Research Assistant *Oct 2012– Sept 2017*

Google Inc., Mountain View.
Software Engineering Intern *June – Sept 2014*

- Implemented and tested a multi-dimensional clustering technique to find rings of fraudulent nodes in advertising networks which is now a part of the spam detection pipeline for AdSense networks.
- Developed and tested tools for data preprocessing and dimensionality reduction for large datasets.

AllGo Embedded Systems Pvt. Ltd., Bangalore.
Summer Intern *May – July 2009*

- Developed and tested an application to establish a multicast network of Zigbee sensors in a Wireless Personal Area Network according to IEEE 802.15.4 Standard for home automation.

Invited Talks

- *"Crowd-sourced Clustering: Robust Algorithms and Query Design."*
  - **Machine Learning Seminar, CMU**. November 2018
  - **ECE Lunch Seminar, Seattle University**. April 2019
- *"Active Querying for Crowdsourced Clustering."*
  - **56th Annual Allerton Conference on Communication, Control and Computing, Invited Session on New Directions in Clustering**. October 2018
  - **Machine Learning Seminar, Paul G. Allen School of CSE, UW, Seattle**. March 2018
- *"Crowdsourced Clustering via Triangle Queries."*
  - **Asilomar Conference on Signals Systems & Computers**. Oct 2017
- *"Tensor Embedding for Crowdsourced Clustering"*
  - **Asilomar Conference on Signals Systems & Computers**. Oct 2017
- *"Crowdsourcing, Graph Clustering and Convex Optimization."*
  - **SIAM Conference on Optimization, Vancouver**. May 2017
  - **Paul G. Allen School of CSE, University of Washington, Seattle**. March 2017
  - **Department of ECE, University of Michigan, Ann Arbor**. March 2017
- *"What You Ask Is What You Get: Query Design & Robust Algorithms for Crowdsourced Clustering."*
  - **SoCal ML Symposium, California Institute of Technology, Pasadena**. Nov 2016
  - **Wireless Networking and Communications Group, Dept. of ECE, UT Austin.** Oct 2016
- *"Graph Clustering with Missing Data: Convex Algorithms, Theoretical Guarantees & Practical Applications."*
  - **SIAM Conference on Discrete Mathematics, Atlanta.** June 2016