RASHMI K. VINAYAK

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Education

- **University of California at Berkeley, 2011- 2016 (expected)**
  PhD Candidate, Dept. of Electrical Engineering & Computer Science
  GPA: 4.0/4.0 (major), 3.95/4.0 (overall)
- **Indian Institute of Science, Bangalore, India, 2008-10**
  Master of Engineering in Telecommunications
- **National Institute of Technology Karnataka, Surathkal, India, 2003-07**
  Bachelor of Technology in Electronics and Communication Engineering

Awards and Honors

- **Eli Jury Award 2016** for outstanding achievement in the area of Systems, Communications, Control, or Signal Processing at EECS, UC Berkeley.
- **Google Anita Borg Memorial Scholarship** 2015-16.
- **Microsoft Research PhD Fellowship** 2013-15.
- **Facebook Fellowship** 2012-13.
- **IEEE Data Storage Best Student Paper Award** and **Best Paper Award** for the years 2011/2012.

Work Experience

- **EECS, UC Berkeley, Graduate Student Instructor, Fall 2015.**
  - For the graduate course 'Random Processes in Systems'.
- **Microsoft Research, Redmond, Research Intern, May-August 2014.**
  - On improving accuracy of decision trees for regression, classification, and ranking.
- **EECS, UC Berkeley, Graduate Student Instructor, Fall 2013.**
  - For the undergraduate course 'Coding theory for communication and beyond'; helped in revamping the course content, taught classes and discussion sections, and mentored project groups.
- **Microsoft Research, Redmond, Research Intern, May 2013 - August 2013.**
  - Ultra-large-scale K-means clustering on GPUs: explored algorithms to circumvent constraints resulting from the limited on-board memory on GPUs.
- **Facebook Inc, Menlo Park, Software Engineering Intern, May 2012 - August 2012.**
  - On erasure codes in Facebook's HDFS (Hadoop Distributed File System) clusters
- **Indian Institute of Science, Bangalore, Research Associate, July 2010 - June 2011.**
  - Industry collaborative research project on reliable and efficient media storage, distribution, and retrieval in content distribution networks.
- **Nvidia Graphics Pvt. Ltd., Bangalore, ASIC Designer, July 2007 - July 2008.**
  - Design of high performance computer chip-sets for gaming.

- **Goldman Sachs, Bangalore, Summer Intern, May-June 2006.**
  - Statistical analysis of events in the back-end infrastructure (high-speed trading links) to identify key issues and focus areas.
- **Indian Institute of Science, Bangalore, Summer Intern, May-June 2005.**
  - Classification of MRI brain images into diseased & non-diseased categories using image processing techniques & neural networks (in collaboration with M.S. Ramaiah Hospital, Bangalore).

Teaching

- **EECS, UC Berkeley, Graduate Student Instructor, Fall 2015.**
  - For the graduate course 'Random Processes in Systems'.
- **EECS, UC Berkeley, Graduate Student Instructor, Fall 2013.**
  - For the undergraduate course 'Coding theory for communication and beyond'; helped in revamping the course content, taught classes and discussion sections, and mentored project groups.

Publications

Journal Pre-prints

- **K. V. Rashmi**, N. B. Shah and K. Ramchandran, "A Piggybacking Design Framework for Read-and Download-efficient Distributed Storage Codes," *Under submission to IEEE Transactions on Information Theory.*
- **K. V. Rashmi**, N. B. Shah, K. Ramchandran, and P. V. Kumar, "Information-theoretically Secure Erasure Codes for Distributed Storage," *Under submission to IEEE Transactions on Information Theory.*

Peer-reviewed Journal Publications

- **K. V. Rashmi**, N. B. Shah and P. V. Kumar, "Optimal Exact-Regenerating Codes for the MSR and MBR Points via a Product-Matrix Construction," *IEEE Transactions on Information Theory*, vol. 57, no. 8, pp. 5227 - 5239, Aug. 2011. ***Best Paper Award and Best Student Paper Award.***
- N. B. Shah, **K. V. Rashmi** and K. Ramchandran," Distributed Secret Dissemination Across a Network ," *IEEE Journal of Selected Topics in Signal Processing*, vol. 9, no. 7, pp. 1206-1216, Oct. 2015.
- N. B. Shah, **K. V. Rashmi**, P. V. Kumar and K. Ramchandran, "Distributed Storage Codes with Repair-by-Transfer and Non-achievability of Interior Points on the Storage-Bandwidth Tradeoff," *IEEE Transactions on Information Theory*, vol. 58, no. 3, 1837 - 1852, Mar. 2012.
- N. B. Shah, **K. V. Rashmi**, P. V. Kumar and K. Ramchandran,"Interference Alignment in Regenerating Codes for Distributed Storage: Necessity and Code Constructions," *IEEE Transactions on Information Theory*, Apr. 2012.

Peer-reviewed Conference Publications

- P. Nakkirun, **K. V. Rashmi**, and K. Ramchandran, "Optimal Systematic Distributed Storage Codes with Fast Encoding", in *Proc. IEEE International Symposium on Information Theory (ISIT)*, 2016 (to appear).
- **K. V. Rashmi**, P. Nakkirun, J. Wang, N. B. Shah, K. Ramchandran, "Having Your Cake and Eating It Too: Jointly Optimal Codes for I/O, Storage and Network-bandwidth In Distributed Storage Systems", in *USENIX Conference on File And Storage Technologies (FAST)*, 2015.
- **K. V. Rashmi**, and Ran Gilad-Bachrach, "DART: Dropouts meet Multiple Additive Regression Trees", in *Proc. International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2015.

- **K. V. Rashmi**, N. B. Shah, D. Gu, H. Kuang, D. Borthakur and K. Ramchandran, "A "Hitchhiker's" Guide to Fast and Efficient Data Reconstruction in Erasure-coded Data Centers ", ACM SIGCOMM, 2014.
- N. B. Shah, **K. V. Rashmi**, K. Ramchandran, "One Extra Bit of Download Ensures Perfectly Private Information Retrieval", in *Proc. IEEE International Symposium on Information Theory (ISIT)*, 2014.
- **K. V. Rashmi**, N. B. Shah, D. Gu, H. Kuang, D. Borthakur and K. Ramchandran, "A Solution to the Network Challenges of Data Recovery in Erasure-coded Distributed Storage Systems: A Study on the Facebook Warehouse Cluster", in *USENIX Workshop on Hot Topics in Storage and File Systems (HotStorage)*, 2013.
- **K. V. Rashmi**, N. B. Shah and K. Ramchandran, "A Piggybacking Design Framework for Read-and Download-efficient Distributed Storage Codes", in *Proc. IEEE International Symposium on Information Theory (ISIT)*, 2013.
- N. B. Shah, **K. V. Rashmi** and K. Ramchandran, "Efficient and Distributed Secret Sharing in General Network", in *Proc. IEEE International Symposium on Information Theory (ISIT)*, 2013.
- **K. V. Rashmi**, N. B. Shah, K. Ramchandran and P. V. Kumar, "Regenerating Codes for Errors and Erasures in Distributed Storage", in *Proc. IEEE International Symposium on Information Theory (ISIT)*, 2012.
- **K. V. Rashmi**, N. B. Shah and P. V. Kumar, "Enabling Node Repair in Any Erasure Code for Distributed Storage," in *Proc. IEEE International Symposium on Information Theory (ISIT)*, 2011.
- N. B. Shah, **K. V. Rashmi** and P. V. Kumar, "Information-theoretically Secure Regenerating Codes for Distributed Storage," in *Proc. IEEE GLOBECOM*, 2011.
- **K. V. Rashmi**, N. B. Shah, P. V. Kumar and K. Ramchandran, "Explicit and Optimal Exact-Regenerating Codes for the Minimum-Bandwidth Point in Distributed Storage," in *Proc. IEEE International Symposium on Information Theory (ISIT)*, 2010.
- N. B. Shah, **K. V. Rashmi** and P. V. Kumar, "A Flexible Class of Regenerating Codes for Distributed Storage," in *Proc. IEEE International Symposium on Information Theory (ISIT)*, 2010.
- N. B. Shah, **K. V. Rashmi**, P. V. Kumar and K. Ramchandran,"Explicit codes minimizing repair bandwidth for distributed storage," in *Proc. IEEE Information Theory Workshop (ITW)*, 2010.
- **K. V. Rashmi**, N. B. Shah, P. V. Kumar and K. Ramchandran, "Explicit Codes Uniformly Reducing Repair Bandwidth in Distributed Storage," in *Proc. IEEE National Conference on Communications (NCC)*, 2010.
- N. B. Shah, **K. V. Rashmi**, P. V. Kumar and K. Ramchandran, "Interference Alignment as a Tool in Network Coding as Applied to Distributed Storage," in *Proc. IEEE National Conference on Communications (NCC)*, 2010.
- **K. V. Rashmi**, N. B. Shah, P. V. Kumar and K. Ramchandran, "Explicit construction of optimal exact regenerating codes for distributed storage," in *Proc. Allerton Conference on Control, Computing and Communication*, 2009.