ABHIK KUMAR DAS

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EDUCATION

- **The University of Texas at Austin**, USA *Aug 2008 - Dec 2013*
  M.S.E. and Ph.D. in Electrical and Computer Engineering, **CGPA**: 3.85/4.00
  Graduate Advisor: Prof. Sriram Vishwanath
- **Indian Institute of Technology (IIT) Kanpur**, India *Aug 2004 - May 2008*
  B.Tech. in Electrical Engineering, **CGPA**: 9.4/10.0

WORK EXPERIENCE

- **Staff Systems Engineer**, *Samsung Modem Lab*, San Diego, USA *Jan 2014 - present*
  - *4G & 5G modem:*
    * Investigated and designed efficient early termination schemes for polar decoder in 5G.
    * Designed and evaluated an accurate scheme to determine device position in 4G and IoT.
    * Designed and implemented accurate measurement schemes for cell signal strength in 4G.
    * Worked on designing channel quality metrics and its associated feedback process in 4G.
    * Worked on the design and optimization of channel estimation algorithms in 4G and 5G.
  - *WiFi modem:*
    * Worked on the design and optimization of beamforming feedback module and procedure.
    * Designed and evaluated an low-complexity and accurate frame format detection scheme.

RESEARCH EXPERIENCE

- **Research Assistant**, *The University of Texas at Austin*, USA *Jan 2010 - Dec 2013*
  - Analyzed the problem of learning Markov networks from information-theoretic perspective.
  - Worked on designing coding schemes to improve the data throughput in multicast networks.
  - Examined the problem of influence maximization in social networks due to voice calls/SMSs.
- **Summer Intern**, *Qualcomm CDMA Tech.*, Santa Clara, USA *June 2012 - Aug 2012*
  - Worked on improving the reliability aspect of control information for 3G W-CDMA protocol.
  - Designed and tested algorithms to improve the battery usage and performance of 3G modem.
- **Summer Intern**, *University of New Mexico*, *Albuquerque*, USA *May 2007 - Aug 2007*
  - Used large deviation techniques to characterize the operation of avalanche photodiodes (APDs).

PUBLICATIONS

Conferences

- A. K. Das, P. Netrapalli, S. Sanghavi, and S. Vishwanath, "Learning Structure of Power-Law Markov Networks," *IEEE International Symposium on Information Theory (ISIT)*, July 2014.
- A. K. Das, S. Banerjee, and S. Vishwanath, "Linear Network Coding for Multiple Groupcast Sessions: An Interference Alignment Approach," *IEEE Information Theory Workshop (ITW)*, Sept 2013.

- A. K. Das and S. Vishwanath, "On Finite Alphabet Compressive Sensing," *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, May 2013.
- A. K. Das, P. Netrapalli, S. Sanghavi, and S. Vishwanath, "Learning Markov Graphs up to Edit Distance," *IEEE International Symposium on Information Theory (ISIT)*, July 2012.
- A. K. Das, S. Sanghavi, and S. Vishwanath, "Spread of Influence in Cellular Social Networks," *MIT Workshop on Information and Decision in Social Networks*, June 2011.
- A. Gopalan, S. Banerjee, A. K. Das, and S. Shakkottai, "Random Mobility and the Spread of Infection," *IEEE International Conference on Computer Communications (INFOCOM)*, April 2011.
- A. Ramakrishnan, A. K. Das, H. Maleki, A. Markopoulou, S. Jafar, and S. Vishwanath, "Network Coding for Three Unicast Sessions: Interference Alignment Approaches," *IEEE Allerton Conference*, Oct 2010.
- A. K. Das, S. Vishwanath, S. Jafar, and A. Markopoulou, "Network Coding for Multiple Unicasts: An Interference Alignment Approach," *IEEE International Symposium on Information Theory (ISIT)*, June 2010 (finalist for **Best Paper Award**).
- A. K. Das, S. Agrawal, and S. Vishwanath, "On Algebraic Traceback in Dynamic Networks," *IEEE International Symposium on Information Theory (ISIT)*, June 2010.

Journals

- C. Meng, A. K. Das, A. Ramakrishnan, S. Jafar, A. Markopoulou, and S. Vishwanath, "Precoding-based Network Alignment for Three Unicast Sessions," *IEEE Transactions on Information Theory*, Nov 2014.
- S. Banerjee, A. Gopalan, A. K. Das, and S. Shakkottai, "Epidemic Spreading With External Agents", *IEEE Transactions on Information Theory*, July 2014.
- K. Appaiah, S. Zisman, A. K. Das, S. Vishwanath, and S. R. Bank, "Analysis of Laser and Detector Placement in MIMO Multimode Optical Fiber Systems," *IEEE Journal of Optical Communications and Networking*, April 2014.
- P. Sun, M. Hayat, and A. K. Das, "Bit Error Rates for Ultrafast APD Based Optical Receivers: Exact and Large Deviation Based Asymptotic Approaches," *IEEE Transactions on Communications*, Sept 2009.

SKILLS

- **Programming Languages**: C, C++, Python, Java
- **Software Packages**: MATLAB, LabView, LaTeX

HONORS & ACHIEVEMENTS

- Awarded *Certificate of Academic Excellence* for 2005-2006 by IIT Kanpur.
- Youngest *Indian National Mathematics Olympiad* (INMO) awardee in 2001 and participated in the *International Mathematics Olympiad Training Camp* (IMOTC) for the years 2001 and 2002.
- Recipient of certificates of merit in *Indian National Physics* and *Chemistry Olympiads*, 2004.
- Awarded *KVPY* fellowship (Young Scientist fellowship) in 2002 by the Ministry of Science and Tech., Govt. of India, and attended a summer camp at *Indian Institute of Science* for the same.
- Recipient of *National Talent Search* scholarship in 2002, awarded by the Govt. of India.
- Ranked 1st in *Regional Mathematics Olympiad*, 2001-2003, and twice awarded the *Dr. Subratananda Dowerah Memorial Gold Medal* by Assam Academy of Mathematics, India.