

NARAYANA P. SANTHANAM

DEPARTMENT OF ELECTRICAL ENGINEERING, UNIVERSITY OF HAWAII, HONOLULU HI 96822

EDUCATION

- Ph.D. (2006) (with Prof. A. Orlitsky), University of California, San Diego;
- M.S. (2003) (with Prof. A. Orlitsky), University of California, San Diego;
- B. Tech (2000), Indian Institute of Technology, Madras.

ACADEMIC EXPERIENCE

- Assistant Professor, University of Hawaii, 2009-.
- Postdoctoral researcher, UC Berkeley, 2007-2008. (Department of Electrical Engineering and Computer Science)
- Graduate Student Researcher, UC San Diego, 2000-2006. (compression, probability estimation, statistical learning, statistics)

CURRENT MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS Member of the IEEE as well as of the Communications, Signal processing, Information Theory and Man, machine and Cybernetics societies within the IEEE.

SERVICE ACTIVITIES

- Tutorials chair, IEEE Symposium on Information Theory, 2014
- Technical Program Committee Chair, International Symposium on Information Theory and its Applications, 2012
- Technical Program Committee, ISIT 2014, COMSNET 2014, Information Theory Workshop 2010
- Associate Editor, Entropy (open access journal published from Basel, Switzerland)
- Reviewer, (among others) IEEE Transactions on Information Theory, IEEE Transactions on Communications, SIAM Review, Annals of Applied Statistics, Annals of Statistics, Journal of Machine Learning Research, COLT, Biometrika.
- Co-lead of the Big Data and Data Analytics cluster of the College of Engineering
- Graduate committee of the Electrical Engineering Department

HONORS AND AWARDS

- Nominated and elected into the NSF Center for Science of Information (2014) and the core person for the Center for the University of Hawaii (from 2015).
- 2006 IEEE Information Theory Society Best Paper Award.
- 2003 Capocelli Prize at the Data compression conference.
- Principal Investigator (PI) of NSF award CCF-1065632

- co-PI of NSF awards CCF-1018984 and EECS-1029081

PROFESSIONAL DEVELOPMENT IN THE LAST 3 YEARS

- Co-organizer for the workshop “Information theory, learning and big data” sponsored by the Simon’s Institute for the Theory of Computing, Berkeley, CA in Spring 2015.
- Taught a tutorial on reworking statistics for the big data regime at SPCOM 2014, Bangalore, India
- Organizer for a session on big data at **IEEE ITW** at Seville, Spain in September 2013.

RESEARCH INTERESTS Statistical problems in biology, electrical engineering and computer science, Prediction problems in finance, Information theory (in particular source coding), Statistical learning and regularization, High dimensional problems in statistics, Signal processing, Coding for communications, Combinatorial and probabilistic algorithms for compression and communications, Detection and estimation, Communication and signal processing, Privacy, communication and statistical issues in Smart Grids.

STUDENTS (**Graduate students**) Meysam Asadi (Phd) (expected graduation Spring 2015), Hsin-Yi Chen (Phd) (started Fall 2014), John Halloran (MS) (graduated), Maryam Hosseini (Phd) (started Fall 2012), Nemat Iri (MS) (graduated), Ramezan Paravi (Phd) expected graduation Spring 2014; (**Undergraduate students**) Served as advisor for several undergraduate projects. Students in the last three years are (alphabetically) Cody Driver, Mathew Fall, Chi Jow, Alex Lee, Kevin Oshiro, Dasan Sparks, and Grace Tobin. (**K-12 mentoring**) Work with University of Hawaii outreach programs to mentor high school students over 6 weeks of summer and encourage them to take up STEM disciplines. Students mentored in the last two years are Jennifer Chun, Danielle Woods, Bryson Inafuku and Brandon Wong.

SELECTED LIST OF PUBLICATIONS IN LAST FIVE YEARS

- [1] N. Santhanam, V. Anantharam, A. Kavcic, and W. Szpankowski. Data driven weak universal redundancy. In *Proceedings of IEEE Symposium on Information Theory*, Jul 2014.
- [2] M. Asadi, R. Paravi, and N. Santhanam. Stationary and transition probabilities in slow mixing, long memory Markov processes. *IEEE Transactions on Information Theory*, 60(9), September 2014.
- [3] N. Santhanam, A. Sarwate, and J. Woo. Redundancy of exchangeable estimators. *Entropy*, 16(10):5339–5357, 2014. Full version available from arXiv.
- [4] M. Asadi, X. Huang, A. Kavcic, and N. Santhanam. Optimal detector for multilevel nand flash memory channels with intercell interference. *Journal on Selected Areas of Communication*, 2014.
- [5] M. Hosseini and N. Santhanam. Characterizing asymptotic redundancy of memoryless sources over countable alphabets in terms of single letter marginals. *Entropy*, Jul 2014. Full version available from arXiv.
- [6] N. Santhanam and V. Anantharam. Agnostic insurance of model classes. *Journal of Machine Learning Research*, 2015. Full version available from arXiv doc id: 1212:3866.