

Anand D. Sarwate

Curriculum Vitæ

CONTACT INFORMATION

Assistant Professor

Department of Electrical and Computer Engineering
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RESEARCH INTERESTS

I am broadly interested in statistical algorithms and methods applied to problems in distributed systems, communications, and privacy and security.

EDUCATION

- 1/06–7/08 **University of California, Berkeley**, (Berkeley, California USA)
Ph.D., Electrical Engineering and Computer Sciences (awarded 12/2008)
Designated Emphasis in Communication, Computation and Statistics
Thesis: *Robust and adaptive communication under uncertain interference*
Advisor: Professor Michael Gastpar
- 8/02–12/05 **University of California, Berkeley**, (Berkeley, California USA)
M.S., Electrical Engineering and Computer Sciences (awarded 12/2005)
Thesis : *Observation uncertainty in Gaussian sensor networks*
Advisor: Professor Michael Gastpar
- 9/97–6/02 **Massachusetts Institute of Technology**, (Cambridge, Massachusetts USA)
B.S., Electrical Engineering and Computer Science (awarded 6/2002)
B.S., Mathematics (awarded 6/2002)
Minors in Music and Theater Arts

EMPLOYMENT

- 1/14–present **Rutgers, The State University of New Jersey**, (Piscataway, New Jersey USA)
Assistant Professor
- 10/11–12/13 **Toyota Technological Institute at Chicago**, (Chicago, Illinois USA)
Research Assistant Professor
- 9/08–9/11 **University of California, San Diego**, (La Jolla, California USA)
Postdoctoral Researcher
Supervisors: Professors Alon Orlitsky, Tara Javidi, and Young-Han Kim

CURRENT RESEARCH SUPPORT

- NSF [SaTC-1617849] **TWC: Small: PERMIT: Privacy-Enabled Resource Management for IoT Networks** This proposal studies how privacy, utility, and bandwidth affect each

other in networked data collection and information processing systems. PI: Anand D. Sarwate, Co-PI: Narayan Mandayam: \$500,000.00

- DARPA/Navy [N66001-15-C-4070] **Jana: Ensuring Secure, Private and Flexible Data Access** This project is about building a secure database system that uses secure multiparty computing and privacy-preserving algorithms to hold and process queries on data held by multiple parties. PI: David Archer (Galois, Inc.), subcontract to Rutgers (PI: Rebecca Wright, co-PIs: Anand D. Sarwate, David Cash): \$1,013,723
- NSF [CCF-1453432] **CIF: Small: Active data screening for efficient feature learning** This proposal develops methods for screening samples to use for dictionary learning algorithms to balance representation accuracy and computational efficiency. PI: Waheed Bajwa, Co-PI: Anand D. Sarwate: \$160,000.00
- NIH [1R01DA040487-01A1] **COINSTAC: Decentralized, Scalable Analysis of Loosely Coupled Data** This proposal is to develop a system for automated and privacy-sensitive statistical analyses of data from neuroimaging researchers studying the same condition at different sites. PI: Vince Calhoun, subcontract to Rutgers (PI: Anand D. Sarwate): \$692,575.00 (estimated)
- NSF [CCF-1453432] **CAREER: Privacy-preserving learning for distributed data** This proposal develops key design principles for making practical privacy-preserving distributed learning algorithms and validate them in collaboration with neuroimaging researchers. The results will identify new challenges for information processing and machine learning in general distributed systems. PI: Anand D. Sarwate: \$540,000.00
- NSF [CCF-1218331] **Inference by social sampling.** This work investigates communication and networking paradigms that can enable a network of individual agents to collaboratively estimate distributions over high dimensional spaces, even when individual observations are severely limited in accuracy, space, or time. Co-PIs Anand D. Sarwate, Tara Javidi (UCSD): \$208,426

PAST RESEARCH SUPPORT

- Versign Gift through DIMACS Center to work on applied and theoretical privacy. PIs: Rebecca Wright, Anand D. Sarwate: \$25,000
- DHS **DPAD: Differentially Private Anomaly Detection** [Subcontract to CICCADA] This work seeks to understand how and when we can safely detect anomalies in private data. PIs: Rebecca Wright, Anand D. Sarwate: \$125,000
- ARL [CTA on Robotics] **Active Feature Learning and Classifier Training for Object Recognition** : developing active learning approaches for feature learning for object recognition in rich data such as video. Subaward from General Dynamics. Joint proposal with Waheed Bajwa and Athina Petropulu (Rutgers): \$125,526
- AcademyHealth [EDM Forum] **Review of Technologies to Protect Patient Privacy When Sharing Data for Comparative Effectiveness Research** : commissioned paper for a review of privacy-preserving methods for sharing data for medical research. Joint proposal with Lucila Ohno-Machado and Xiaoqian Jiang (UCSD): \$5,000

PREPRINTS

- [1] Z. Shakeri, W. U. Bajwa, and A. D. Sarwate, “Minimax lower bounds on dictionary learning for tensor data,” ArXiv, Tech. Rep. arXiv:1608.02792 [cs.IT], August 2016. [Online]. Available: <http://arxiv.org/abs/1608.02792>
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