

SHEERAZ AHMAD

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EDUCATION

- **University of California, San Diego** *Sep. 2010 - Sep. 2015 (Expected)*
PhD candidate in Computer Science & Engineering (MS completed)
Overall GPA: **4.0/4.0**
- **Indian Institute of Technology, Kanpur** *Jul. 2004 - May 2008*
Bachelor of Technology in Electrical Engineering
Overall GPA: **9.9/10**, Department Rank: **1**

RESEARCH EXPERIENCE

- **University of California, San Diego (Dr. Angela Yu)** *Feb. 2011 - Current*
Computational modeling of human/animal behavior in different domains with the two-fold aim of gaining insights into the working of the brain, and to develop behaviorally inspired machine learning algorithms. Projects include modeling active sensing as Bayes-optimal sequential decision making; decentralized, dynamic model for the problem of competitive foraging; and ongoing work on modeling emergence of contextual effects in multi-attribute choices.
- **Okinawa Institute of Science and Technology (Dr. Hirokazu Tanaka)** *Jun. 2012*
Investigated the effect of peripheral vision on the decision policies as an extension of the active sensing project. Concluded that the model gives rise to the well known center-of-mass fixation.
- **University of California, San Diego (Dr. Garrison Cottrell)** *Feb. 2011 - Jun. 2011*
Exploration and implementation of various feature learning techniques, like Principal Component Analysis and sparse codes. Proposed a novel algorithm imposing L1 penalties on the learned features, which leads to a set of features closely corresponding to the simple-cell receptive fields of primary visual cortex.
- **Indian Institute of Technology, Kanpur (Dr. A.K.Chaturvedi)** *Aug. 2007 - Apr. 2008*
Proposed a novel channel estimation technique that uses the noisy detected data to further improve error performance compared to existing methods for orthogonal Space-Time Block Codes (Bachelors Thesis).
- **Clemson University (Dr. Carl Baum)** *May. 2007 - Jul. 2007*
Proposed a new mobility model for wireless networks as an improvement over the classic Random Way Point model. The new model achieves the desirable uniform distribution on different geometries.
- **Indian Institute of Technology Kanpur (Dr. A.K.Chaturvedi)** *May. 2006 - Jul. 2006*
Developed a tighter upper bound on the Bit-Error Rate for Additive White Gaussian Noise channels. Also proposed a trade-off mechanism between the tightness and complexity of the bound.

PUBLICATIONS AND PRESENTATIONS

- S. Ahmad, H Huang, and A.J. Yu. Cost-sensitive bayesian control policy in human active sensing. *Frontiers in Human Neuroscience*, 2014.
- S. Ahmad and A.J. Yu. A socially aware bayesian model for competitive foraging. In *Proceedings of the 36th Annual Conference of the Cognitive Science Society*, 2014.
- S. Ahmad, H Huang, and A.J. Yu. Context-sensitive active sensing in humans. *Advances in Neural Information Processing Systems*, 2013.
- S. Ahmad and A.J. Yu. Active sensing as bayes-optimal sequential decision-making. *Uncertainty in Artificial Intelligence*, 2013.
- S. Ahmad and A.J. Yu. Active sensing as bayes-optimal sequential decision-making (presentation). In *Sixth annual inter-Science of Learning Centers (iSLC) Conference*, February 2013.
- S. Ahmad and A.J. Yu. Active sensing as bayes-optimal sequential decision-making (poster). In *Temporal Dynamics of Learning Center, All Hands Meeting*, February 2013.
- S. Ahmad and A.J. Yu. Active sensing as bayes-optimal sequential decision-making. In *NIPS: Workshop on Information in Perception and Action*, December 2012.
- S. Ahmad and A.J. Yu. Active sensing: An optimal inference model (poster). In *NIPS Workshop: Bayesian Nonparametric Models (BNPM) For Reliable Planning And Decision-Making Under Uncertainty*, December 2012.
- H. Huang, S. Ahmad, and A.J. Yu. Active sensing: An optimal inference model (poster). In *Society for Neuroscience*, October 2012.
- S. Ahmad and A.J. Yu. Active sensing: An optimal inference model (presentation). In *Okinawa Computational Neuroscience Course*, June 2012.

WORK EXPERIENCE

- **Summer Intern, Microsoft Research, Redmond** *Jun. 2014 - Sep. 2014*
 - ▶ Implemented Supervised Semantic Indexing for ordering results produced by conversational systems, and for choosing the best natural language template that can be used as a reply.
 - ▶ Designed a graphical interactive tool using C# that enables system designers to train the ranking algorithms even without machine learning expertise.
- **Summer Intern, Oracle, Santa Clara** *Jun. 2011 - Sep. 2011*
 - ▶ Designed an algorithm for anonymous usage of cloud services without sharing the encryption key or disclosing the data to the server.
 - ▶ Analysis and prediction of a workload's signature (resource consumption along several dimensions) using various machine learning techniques, with application in real time scheduling.
- **Member, Research Team, Anveshan Telecom, Bangalore** *Jun. 2008 - May. 2010*
 - ▶ Designed algorithms for achieving synchronization and reducing playout latency as well as packet losses when communicating across remote sites.
 - ▶ Designed algorithms for noise suppression and echo cancellation to enhance received voice quality.

AWARDS AND FELLOWSHIPS

- Invited student at Amazon Graduate Research Symposium, 2014.
- Neural Information Processing Systems travel grant, 2013.
- Invited student at Microsoft Research, Latin American eScience Workshop, 2013.
- Finalist for Howard Hughes Medical Institute (HHMI) International Student Research Fellowship, 2013.
- Qualcomm's FMA (Fellow Mentor Advisor) Fellowship, 2012.
- Neural Information Processing Systems travel grant, 2012.
- Invited student at Okinawa Computational Neuroscience Course, 2012.
- Focht Powell Fellowship, 2010-13.
- Electrical Engineering department medalist, 2008.
- Finalist for best bachelors thesis award, 2008.
- Academic excellence award for 3 consecutive years at IIT Kanpur, 2005-08.
- Merit based scholarship throughout the course of undergraduate study, 2004-08.
- Placed among the top 0.1 % in the country in IIT Joint Entrance Examination, 2004.
- Secured 23rd position in class 12 exams out of approximately 1 million appearing students, 2003.

TEACHING AND OTHER PROFESSIONAL ACTIVITIES

- Student reviewer for MS applicants to UCSD as part of Graduate Admission Committee, 2015.
- Teaching Assistant, CSE 250A, graduate class on Principles of Artificial Intelligence: Probabilistic Reasoning and Decision-Making, Fall 2013 and Fall 2014.
- Panelist for incoming graduate student orientation, 2013 and 2014.
- Mentor for 5 students as part of Jacobs Undergraduate Mentoring Program (JUMP), 2013-14.
- Reviewer for Annual Conference of the Cognitive Science Society, 2013 and 2014.
- Teaching Assistant, CSE 291, graduate class on Predictive Analysis and Data Mining, Spring 2011.
- Volunteer teacher for underprivileged children, National Social Services, 2006-08.

RELEVANT CLASSES, PROJECTS AND SKILLS

- Graduate classes: Machine Learning (series of 3 classes), Probability Theory (series of 3 classes), Computability & Complexity, Algorithm Design & Analysis, Cognition under Uncertainty, Stochastic Processes in Dynamic Systems.
- Undergraduate classes: Probability & Statistics, Applied Stochastic Processes, Convex Optimization, Ordinary & Partial Differential Equations, Real & Complex Analysis.
- Literature survey of dimensionality reduction principles in Markov Decision Processes.
- Handwritten digit recognition using Nearest Neighbor classification.
- Learning an optimal customer targeting email campaign using regression techniques.
- Automatic syllabification of Zulu words using Conditional Random Fields.
- Topic modeling using Latent Dirichlet Allocation.
- Predicting compile-time loop unrolling factors using classification algorithms.
- Predicting branch outcomes in conditional instructions using perceptrons.
- Skills: MATLAB, C/C++/C#, Java, Haskell, HTML/CSS, Mac/Linux/Windows OS.