Siva Kumar Gorantla

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Education

Doctoral:	Ph.D. Candidate in Electrical and Computer Engineering. **James Henderson Fellow** **University of Illinois, Urbana Champaign.**	2009-Present
Graduate:	Applied M.S. in Statistics University of Illinois, Urbana Champaign.	2011 (expected)
Graduate:	Masters in ECE, UIUC. **GPA: 4.0/4.0**	2007-2009
Undergraduate:	**Indian Institute of Technology Madras.** **B.Tech., EE. GPA: 9.40/10.00**	2003-2007

Skill set

- Strong background in Probability theory, Financial Engineering, Statistical analysis, Prediction & Statistical Learning Techniques, Optimization, Stochastic Control and Stochastic Simulation.
- My research is on the interplay between communication theory and optimal stochastic control with 3 IEEE journals and 6 conference publications (as of Jan 2011).
- Professional experience in coding (Java, C/C++), data analysis and using statistical packages (R).

Computing Skills

Java, C/C++ , R, MATLAB, & LaTeX.

Professional Exams: GRE: Quant : 800/800 CFA Level 1(Dec 2008)

Work Experience

Adchemy Inc.

Research Intern May 2010 – Aug 2010

Research Consultant Oct 2010 – Dec 2010

Projects: 1. (Search Engine Marketing) Statistical Learning Techniques for Ad-Campaign Bid Management.
2. (Search Intent Marketing) Information Theoretic approach for building Adchemy Intent Map.

Implemented and tested data-driven algorithms to optimize bids and increase ROI on Google ad-campaigns. Modelled graphical structures that capture what customers' are searching for(customers' intents).
Keywords: Statistical Learning, Optimization, Google Adwords, Information Theory, NLP.

Research Experience

Coordinated Science Lab (CSL), UIUC. Aug 2007 – Present

Graduate Researcher, *Advisor: Prof. Todd Coleman.*

Interplay between Information theory and Stochastic Control, and applicability of this framework to communication with feedback, hidden Markov models and the nonlinear filter, decentralized control, brain-machine interfaces, and queuing theory.

Laboratory for Information and Decision Systems, LIDS, MIT. June 2009 – August 2009

Visiting Research Asst. at MIT, *Mentor: Prof. Muriel Medard.*

Coding strategies for Unequal Error Protection (QoS evaluation) of communication with feedback.

Awards & Honors

- **James M. Henderson** Award for academic excellence at University of Illinois, Urbana-Champaign **2008**
- **S.Subramanian Award** at IIT Madras, for securing Highest GPA among all the disciplines at the institute for the academic year 2003-04. **2004**
- Merit Certificate from Ministry of Human Resources and Development **(HR&D)**, Govt. of India. **2003**
- **All India 7th rank** and **State 1st rank** in two different Engineering Entrance Examinations (SAT equivalents) with more than half a million contestants. **2003**

Academic Achievements

- Secured **State 1st** Rank among 150,000 students in State's Engineering Entrance Exam (**EAMCET**) **2003**
- Secured **All India Rank 7** among 650,000 students in All India Engineering Entrance Exam (**AIEEE**) **2003**
- Secured **All India Rank 452** among 150,000 candidates in the Joint Entrance Examination for IIT. **2003**
- Secured **All India Rank 29** in the National wide Graduate Aptitude Test (**GATE**) **2007**

Relevant Course Work

Stochastic Processes:

Stochastic Processes, Stochastic Calculus in Finance, Stochastic Control, Stochastic Simulation, Information Theory.

Statistics & Econometrics:

Time Series Analysis, Applied Regression & Design, Methods of Applied Statistics, Applied Econometrics.

Learning & Prediction

Statistical Learning, 'Prediction,Learning & Games',

Finance:

Financial Engineering, Corporate Finance, Passed C.F.A. Level 1 Exam (Dec 2008)

The Math:

Probability & Measure Theory I & II, Linear algebra & Optimization, Operations Research.

Course Projects:

- Monte Carlo Methods to Price Asian and European Options
- Pricing of American and European options using Binomial model in C++ and analysis of early exercise.
- Application of Statistical Learning techniques to benchmark data sets.
- Time Series Analysis of benchmark data sets.

Reading

- Options, Futures & Other Derivatives - J.Hull
- Stochastic Calculus for Finance II - Continuous-Time Models - S. Shreve

Publications

Journals

- Siva K. Gorantla, B. Nakiboglu, Todd P. Coleman, Lizhong Zheng, "Multi-layer Bit-wise Unequal Error Protection for Variable Length Blockcodes with Feedback", submitted to IEEE Transactions on Information Theory, Jan 2011.
- Siva K. Gorantla, Todd P. Coleman, "Information-Theoretic Viewpoints on Optimal Causal Coding-Decoding Problems", submitted to IEEE Transactions on Information Theory, Jan 2011.
- Siva K. Gorantla, S. Kadloor, N. Kiyavash, T.P. Coleman, I. Moskowitz, M. Kyang, "Characterizing the Efficacy of the NRL Network Pump in Mitigating Covert Timing Channels", submitted to IEEE Transactions on Information Forensics and Security, Dec 2010.

Conference

- S. K. Gorantla and T. P. Coleman, "Intrinsic Methods in Message Point Communication Achievability", in preparation for IEEE International Symposium on Information Theory (ISIT) , Feb 2010.
- S. K. Gorantla and T. P. Coleman, "On Reversible Markov Chains and Maximization of Directed Information", published in IEEE International Symposium on Information Theory (ISIT) , Jan 2010 (also appeared at a special session on control and communications, Information Theory and Applications Annual Workshop, San Diego, CA, February 2010).
- Siva K. Gorantla, Baris Nakiboglu, Todd P. Coleman, Lizhong Zheng "Bit-wise Unequal Error Protection for Variable Length Blockcodes with Feedback", published in International Symposium on Information Theory (IEEE-ISIT), Austin, Texas, June 2010.
- Siva K. Gorantla, T. P. Coleman, "A Stochastic Control Approach to Coding with Feedback over Degraded Broadcast Channels", published in 49th IEEE Conference on Decision and Control (CDC), Atlanta, Georgia, Dec 2010.
- H. Ebeid, Siva K. Gorantla, T. P. Coleman, "A Necessary Condition for Reliable Communication With Feedback Based Upon Lyapunov Exponents of Dynamical Systems" published in 2010 Military Communications Conference, San Jose, Oct 2010.
- Siva K. Gorantla, S. Kadloor, T.P. Coleman, N. Kiyavash,I. Moskowitz, M. Kyang, "Directed Information and the NRL Network Pump" published in International Symposium on Information Theory and its Applications (ISITA), Taiwan, Oct 2010.
- Siva K. Gorantla, Muriel Medard, Todd P. Coleman, "Network Coding for Timing Channels", in preparation.
- Siva K. Gorantla and T. P. Coleman,"An achievable region for the Exponential Server Broadcast Timing Channel", in preparation.