SRIRAM SOMANCHI

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RESEARCH INTERESTS

My interest is in developing computationally efficient statistical machine learning algorithms for pattern detection in large scale data with applications to healthcare, public health, and other real-world problems in business, management, and policy.

EDUCATION

Carnegie Mellon University
PhD in Information Systems and Machine Learning (expected) Dec 2015
Title: Early Detection of Emerging Patterns in Large-Scale Data
Advisor: Prof. Daniel B. Neill

Carnegie Mellon University
Masters in Machine Learning May 2015

Carnegie Mellon University
M. Phil in Public Policy Management May 2013

Indian Institute of Science
Masters in Computer Science May 2008
Advisor: Prof. Y. Narahari

Jawaharlal Nehru Technological University
Bachelors in Computer Science and Engineering May 2006

SELECTED HONORS & AWARDS

- Heinz College's George Duncan Award for Excellence in Doctoral Studies
- Heinz College's Outstanding Teaching Assistant Award
- Eric & Wendy Schmidt 'Data Science for Social Good' Summer Fellowship 2013
- All India 30th in Graduate Aptitude Test in Engineering (GATE) 2005 with 99.89 percentile

RESEARCH EXPERIENCE

Publications

- S. Somanchi, S. Adhikari, A. Lin, E. Eneva, R. Ghani.Early Prediction of Cardiac Arrest (Code Blue) using Electronic Medical Records. 21^{st} *ACM SIGKDD Conferences on Knowledge Discovery and Data Mining*, 2015.

- S. Speakman, S. Somanchi, E. McFowland III, D. B. Neill. Penalized fast subset scanning. *Journal of Computational and Graphical Statistics*, 2015, in press. **Selected for "Best of JCGS" invited conference session by the journal's editor in chief**.
- S. Speakman, S. Somanchi, E. McFowland III, and D. B. Neill. Disease surveillance, case study. In R. Alhajj and J. Rokne, eds., *Encyclopedia of Social Network Analysis and Mining*, pp. 380-385. Springer, 2014.
- S. Somanchi, S. Adhikari, A. Lin, E. Eneva, R. Ghani. Early Code Blue Prediction Using Patient Medical Records. *Workshop in Neural Information Processing Systems (NIPS)*, 2013.
- S. Somanchi and D. B. Neill. Discovering anomalous patters in large digital pathology images. *Proc. 8^{th} INFORMS Workshop on Data Mining and Health Informatics*, 2013.
- S. Somanchi and D. B. Neill. Fast graph structure learning from unlabeled data for outbreak detection. *Emerging Health Threats Journal* 4:11,017, 2011.
- S. Speakman, E. McFowland III, S. Somanchi, and D. B. Neill. Scalable detection of irregular disease clusters using soft compactness constraints. *Emerging Health Threats Journal* 4:11, 121, 2011.
- S. Somanchi, N. Chaitanya and Y. Narahari. A Novel Bid Optimizer for Sponsored Search Auctions Using Cooperative Game Theory. *In Proceedings of IEEE/WIC/ACM International Conference on Web Intelligence and Intelligent Agent Technology*, 2009.

Invited talks and Presentations

- S. Somanchi. Detecting Anomalous Patterns in Health Care Datasets, Stanford Center for Biomedical Informatics Research, BMIR Colloquia, Stanford University, 2015.
- S. Speakman, S. Somanchi, E. McFowland III, D. B. Neill. Penalized fast subset scanning, 45^{th} Symposium on the Interface between Computing Science and Statistics, Morgantown, WV, 2015.
- S. Somanchi and D. B. Neill. A Star-shaped Scan Statistic for Detecting Irregularly-Shaped Spatial Clusters, International Workshop on Advanced Probability, 2014.
- S. Somanchi and D. B. Neill. Discovering Anomalous Patterns in Large Digital Pathology Images. Data Mining-Health Informatics, INFORMS Annual Conference, Minneapolis, 2013.
- S. Somanchi, D. B. Neill. Fast graph structure learning from unlabeled data for outbreak detection. INFORMS Annual Conference, Charlotte, NC, 2011.

Submitted and In-Preparation

- S. Somanchi and D. B. Neill. Graph Structure Learning from Unlabeled Data for Event Detection. submitted to *Journal of Computational and Graphical Statistics*.
- S. Somanchi A. V. Parwani and D. B. Neill. Detecting Anomalous Patterns in Digital Pathology Whole Slide Images. Paper in preparation to *Journal of American Medical Informatics Association*.

RESEARCH GRANTS

- PNC center small research grant for predicting customer security violations, 2013 (with Prof. Rahul Telang)
- PNC center small research grant for monitoring customer financial health, 2014 (with Edward McFowland III and Prof. Michael D. Smith)

TEACHING EXPERIENCE

Carnegie Mellon University

- Statistics for IT Managers
- Statistics for Policy Analysis
- Large Scale Data Analysis
- Exploring and Visualizing Data
- Applied Data Science

SOFTWARE TECHNOLOGIES

- Programming Languages: C, C++, C#, Java, Matlab, R, Python
- Database: SQL

WORK EXPERIENCE

Data Science for Social Good Fellowship, Chicago — Summer 2013
Microsoft India Development Center, Hyderabad, India — 2008-2010
Software Development Engineer

RELEVANT COURSE WORK

Machine Learning and Statistics: Machine Learning, Intermediate Statistics, Statistical Machine Learning, Artificial Intelligence for sustainability and health, Data Mining, Machine Learning and Policy, Machine Learning for Developing World, Mining massive datasets, Time Series, Statistical Theory, Modeling and Simulation.

Computer Science: Graduate Algorithms, Design and Analysis of Algorithms, Topics in Algorithms, Database Management, Topics in Database Management.

Others: Analysis of Social Media, PhD Microeconomics, Electronic Commerce, Topics in Game Theory