Mrinmaya Sachan

CONTACT INFORMATION	Machine Learning Department School of Computer Science Carnegie Mellon University	*Phone:* +1-412-692-0642 *E-mail:* mrinmays@cs.cmu.edu *WWW:* https://sites.google.com/site/mrinsachan/

RESEARCH INTERESTS

Natural Language Processing: Machine Comprehension, Computational Semantics, Textual Entailment, Semantic Parsing, Coreference Resolution and Discourse Analysis.

Machine Learning: Structured Prediction, Graphical Models, Bayesian Inference, Deep Learning, Multi-view and Multi-task Learning

EDUCATION

Ph.D., Machine Learning Department, CMU (2014-)   Advisor: Prof. Eric Xing
M.S., Language Technologies Institute, CMU (2012-13)   Advisor: Prof. Eduard Hovy
B.Tech., Computer Science and Engineering, IIT Kanpur (2006-10)

SCHOLASTIC ACHIEVEMENTS AND AWARDS

Best paper honorable mention at ACL 2015.
Siebel Scholar, 2014. Among 5 from CMU & 85 from best schools in CS, Management & Bioengineering to receive the $ 35,000 scholarship.   (Scholar Profile)
Facebook Fellowship Finalist, 2014-15.   (Announcement)
Research Assistantship, MLD, CMU. Full tuition & stipend covered, 2014-xx.
Research Assistantship, LTI, CMU. Full tuition & stipend covered, 2012-14.
PhD Admit & Research Assistantship at Stanford, UIUC, UT Austin, U Washington & U Maryland. Full Tuition and stipend covered (Not accepted).
Aditya Birla Scholarship, full tuition and stipend given to 10 students across IITs.
Featured in Dean's List at IIT Kanpur for 10.0 CPI in consecutive semesters, 06-07.
Recipient of Central Board of Secondary Education Merit Scholarship 2006-10.
State Rank 1 & AIR 29, All India Engineering Entrance among $\sim 400,000$ candidates.
All India Rank (AIR) - 69, IIT JEE entrance 2006 among $\sim 350,000$ candidates.
IBM Science Accomplishment Award'2011. IBM A-level Accomplishment Award'2010.

WORKING SUBMISSIONS

Sachan, M., A. Dubey, M. Faruquie, E. P. Xing. Using Mathematical Theorems to solve Geometry Problems.

Sachan, M., A. Dubey, E. P. Xing. Learning Answer-Entailing Structures for 8th grade Science QA.

Sachan, M., E. Hovy. Unsupervised Joint Entity and Event Coreference Resolution.

Sachan, M., A. P. Parikh, S. Cohen, E. P. Xing. Spectral Regularization for Max-margin Parsing.

REFEREED PUBLICATIONS IN CHRONOLOGICAL ORDER

Google Scholar   DBLP

Sachan, M., A. Dubey, E. P. Xing, M. Richardson. Learning Answer-Entailing Structures for Machine Comprehension. In Proceedings of ACL 2015 (Best paper honorable mention).   [PDF]

Sachan, M., E. Hovy. An Active Learning Approach to Coreference Resolution. In Proceedings of IJCAI 2015.   [PDF]

Sachan, M., A. Dubey, S. Srivastava, E. P. Xing, E. Hovy. Spatial Compactness meets Topical Consistency: Jointly modeling Links and Content for Community Detection (Full paper) , *In Proceedings of WSDM 2014.*   [PDF]

Goyal, K.*, S. K. Jauhar*, H. Li*, **M. Sachan***, S. Srivastava*, E. Hovy. A Structured Distributional Semantic Model for Event Co-reference (Short Paper), *In Proceedings of ACL 2013.* *** Equally contributing authors**   [PDF]

Goyal, K.*, S. K. Jauhar*, H. Li*, **M. Sachan***, S. Srivastava*, E. Hovy. A Structured Distributional Semantic Model: Integrating Structure with Semantics (Full Paper) *To appear in Proceedings of the ACL 2013* workshop on Continuous Vector Space Models and their Compositionality. *** Equally contributing authors**   [PDF]

Sachan, M., D. Hovy, E. Hovy. Solving Electrical Networks to Incorporate Supervision in Random Walks (Poster) In *Proceedings of WWW, 2013*.   [PDF]

Sachan, M., S. Srivastava. Collective Matrix Factorization for Co-Clustering (Poster). In *Proceedings of WWW, 2013*.   [PDF]

Hovy, D., S. Srivastava, H. Li, K. Goyal, **M. Sachan**, W. Sanders, S. K. Jauhar, E. Hovy. Identifying Metaphorical Expressions with Tree Kernels. (Workshop Paper) *To appear in Proceedings of the HLT-NAACL* Meta4NLP Workshop, 2013.   [PDF]

Sachan, M., D. Contractor, T. Faruquie, L.V. Subramaniam. Using Content and Interactions for discovering communities in Social Networks (Full Paper). In *Proceedings of WWW, 2012*   [PDF]

Sachan, M., D. Contractor, T. Faruquie, L.V. Subramaniam. Probabilistic model for discovering Topic based Communities in Social Networks (Poster). In *Proceedings of CIKM, 2011*   [PDF]

Sachan, M., T. Faruquie, L.V. Subramaniam, M. Mohania. Using Text Reviews for Product Entity Completion (Full Paper). In *Proceedings of International Joint Conference on Natural Language Processing (IJCNLP), 2011*   [PDF]

<table>
<tr><td>TECHNICAL REPORTS / UNDERGRADUATE RESEARCH PAPERS</td><td>

Sachan, M., G. Schonherr and S. Srivastava. Information Geometric Perspectives to Machine Learning: A Review. Technical Report, CMU, May 2013   [PDF]

Sachan, M., S. Jauhar and S. Srivastava. Bilingual Tree Alignment: A Review. Technical Report, CMU, May 2013   [PDF]

Sachan, M., **M. Sachan**, A. Seth. Inefficiency in Network based Games: A Review. Technical Report, IIT Kanpur, May 2010   [PDF]

Sachan, M., R. Ichise. Using Semantic Information to Improve Link Prediction Results in Network Datasets (Full Paper). In *Proceedings of the IJET*, 2010   [PDF]

Sachan, M., R. Ichise. Using Abstract Information and Community Alignment Information for Link Prediction (Full Paper). In *Proceedings of the ICMLC*, 2010 [PDF]
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PATENTS/ DISCLOSURES with USPTO

Measuring and Altering Topic Influence on Edited and Unedited Social Media. With N. M. Simon, L.V. Subramaniam and S. Mehta.   [LINK]

System and Method for supporting dynamic transactions in MDM. With D. Contractor, H. P. Karanam, T. Faruquie, M. Sachan, S. Soni and L.V. Subramaniam.

System and Method for Providing Visual Entity Level Querying. With S. Soni, D. Contractor, H.P. Karanam, T. Faruquie and L.V. Subramaniam.

GRADUATE RESEARCH INTERNSHIP

Microsoft Research, Redmond   **June 2013 - August 2013**
Learning Answer-Entailing Structures for Machine Comprehension
This work won the best paper honorable mention at ACL 2015.

PROFESSIONAL EXPERIENCE

Software Engineer, IBM Research, India   **July 2010 - June 2012**

Probabilistic models for Community discovery   Feb 2011 - Dec 2011
Published at CIKM 2011 (pdf) and at WWW 2012 (pdf).

Using Text Reviews for Product Entity Completion Sep 2010 - Sep 2011
This work was published at IJCNLP 2011 (pdf).

MDM-DaaS (Data-as-a-Service) Jan 2011 - June 2012
The work, an IBM Science accomplishment presented at the IBM Industry Conclave has been patented. Industry track paper is under submission. (pdf withheld)

CaaTS (Cleansing-as-a-Transient-Science) July 2010 - June 2012
The solution, released as a cloud service is an A-level IBM Accomplishment.

UNDERGRADUATE RESEARCH INTERNSHIP

National Institute of Informatics, Tokyo May 2009 - July 2009
Using Abstract and Community Alignment Information for Link Prediction
Published at ICMLC 2010 (PDF) and later at IJET journal (PDF)

PHD AND MASTER'S RESEARCH

Carnegie Mellon University

Solving Geometry Problems Feb 2015 - Date

Visual Question Answering Feb 2015 - Date

Spectral Regularization for Max-margin Parsing Aug 2014 - Date

Jointly Learning Word Embeddings & Topic Models. Aug 2014 - Date

Compact Community Detection in Social Network Aug 2012 - Aug 2013
Published at WSDM 2014. (pdf).

Compositional Semantics and Event Co-reference Jan 2013 - Date
Published at ACL 2013 (pdf) and the CVSC Workshop - ACL 2013 (pdf).

Incorporating Supervision in Random Walks Dec 2012 - Sep 2013
Presented as a poster at WWW 2013 (pdf).

Matrix Factorization approaches for Co-clustering Aug 2012 - Sep 2013
Presented as a poster at WWW 2013 (pdf).

Mutually Reinforcing Entity & Event Coreference July 2013 - Date

Active Learning for Coreference Resolution Oct 2013 - Date
Published in IJCAI 2015.

UNDERGRADUATE THESIS

Community Detection in Co-authorship networks May 2009 - July 2010
Published at IJET journal (PDF). [Report].

COMMUNITY SERVICE

I lead a voluntary effort, IRLkids at IBM to educate under-privileged kids in our neighborhood. This effort has helped a bunch of about 25 kids go to school, and it still continues. In the past, I have co-managed and given upto 8 hours of weekly voluntary service to the student NGO, Prayas at IIT Kanpur.

REFERENCES AVAILABLE ON REQUEST

Prof. Eric P. Xing (e/mail: epxing@cs.cmu.edu; phone: +1-412-268-2559)

Prof. Eduard Hovy (e/mail: hovy@cmu.edu; phone: +1-412-268-6592)

Dr. Matthew Richardson (e/mail: mattri@microsoft.com; phone: +20-2-27689700)

Dr. Mukesh Mohania (e/mail: mkmukesh@in.ibm.com; phone: +91-11-412-92222)
- DE & Global Chief Architect, IBM Research India

Dr. L. V. Subramaniam (e/mail: lvsubram@in.ibm.com; phone: +91-11-412-92201)
- STSM, Manager IBM Research India, Member AoT, IBM Master Inventor