

Shashank Gupta

BASIC INFORMATION	Graduating: August, 2018 Visa Status: F1 Student (Eligible for OPT) Citizenship: India	sgupta96@illinois.edu (+1) 217-904-6006 https://shatu.github.io/
EDUCATION	University of Illinois at Urbana Champaign Master of Science, Computer Science Thesis Adviser: Prof. Dan Roth	Aug'15 – Aug'18 (expected) 3.83/4.0
	Birla Institute of Technology and Science, Pilani, India Bachelor of Engineering (Hons.), Computer Science	Aug'08 – June'12 3.42/4.0
RESEARCH INTERESTS	Natural Language Processing: Question Answering; Dialogue Systems; Abstractive Summarization; Language Generation; (Sent./Doc.) Representation Learning. Machine Learning: Deep Structured Models; Deep Generative Models; Distributed ML; Deep Reinforcement Learning, Model Interpretability & Adversarial Attacks.	
TECHNICAL SKILLS	Languages: <i>Proficient:</i> Python, Java <i>Basic:</i> C, C++, SQL, HTML/CSS, JavaScript, JSP/Servlets Toolkits: Tensorflow, Hadoop, Pig, CogComp-NLP, Illinois-SL, Matlab, LaTeX	
PUBLICATIONS	Shashank Gupta , Varun Chandramouli and Soumen Chakrabarti. “ <i>Web-scale Entity Annotation Using MapReduce</i> ”. In: High Performance Computing (HiPC), 2013 [PDF]	
RESEARCH EXPERIENCE	Research Assistant:	
	<ul style="list-style-type: none">● UIUC: Cognitive Computation Group (Aug'15 - Dec'17) <i>Themes: Unsupervised Text Classification; Text Generation; Structured Learning</i>● Max Planck Institute (MPI), Databases & Info. Sys. Group (Aug'14 - April'15) <i>Themes: Named Entity Disambiguation; KB Construction</i>● IIT-Bombay: InfoLab (Jan'13 - June'14) <i>Themes: Entity Search & Disambiguation; Distributed Training and Indexing</i>● Yahoo Labs: Ad-Predict Team (June - Dec'12) <i>Themes: Display Ad-Platform; User-Response Prediction</i>● Yahoo R&D: User Data & Analytics Team (Jan - June'12) <i>Themes: Search Ad-Platform; User-Response Prediction; Automated Account Optim.</i>	
TEACHING EXPERIENCE	Teaching Assistant:	
	<ul style="list-style-type: none">● UIUC: Machine Learning, CS446 (Aug - Dec'16)● IIT-Bombay: Web Search and Mining, CS635 (July - Nov'13)● BITS-Pilani: Operating Systems, CS C372 (Aug - Dec'11)	
RECENT PROJECTS	Unsupervised Text Classification (Aug'15 - Present) <i>Guide: Prof. Dan Roth, UIUC</i> Web	
	<ul style="list-style-type: none">– Key idea is to embed documents & topics using World Knowledge, and then compute similarity.– Developed new topic-sensitive word and entity embeddings by augmenting the Word2Vec loss, and used their composition to represent documents.– Upon identifying the need to learn the composition itself, modeled it as a One-shot Topic Classification problem using Distant Supervision from Wikipedia.– An empirical study of architectures revealed the importance of hierarchical modeling & attention.– Currently using VGG-style networks with skip connections to learn topic-sensitive document embeddings from Wikipedia, where the Wikipedia categories are the labels.	
	Conditional Text Generation (Jan - May'17) <i>Guide: Prof. Svetlana Lazebnik, UIUC</i> Web	
	<ul style="list-style-type: none">– Experimented with Conditional GANs and VAEs for sentiment-conditioned review generation.– Experimented with both Policy-Gradient and Gumbel-Softmax, and used Curriculum Learning with a conditional language model to bootstrap the GANs.	

Joint NER, Relation Extraction and CoReference Resolution (Jan - May'16)
Guide: Prof. Dan Roth, UIUC [Web](#) | [Github](#)

- Aim was to try out joint modeling of NER, Relation Extraction and CoRef with constraints.
- Simple coupling of classifiers without constraints showed poor performance.
- Developed a framework for joint training with Constrained-Conditional Models, using Illinois-SL and CogComp-NLP.

PAST
PROJECTS

Agile NERD for KB-Lifecycle (Aug'14 - April'15)
Guide: Prof. Gerhard Weikum, Prof. Denilson Barbosa, MPI [Web](#)

- Identified the problem of separating mentions of emerging entities from mentions worthy of abstention as the key hurdle in achieving real-time KBs and iterative entity annotation on corpus.
- Used the disagreement between an ensemble of annotators to signal abstention on a given mention.

Scalable Entity Disambiguation and Search (Jan'13 - June'14)
Guide: Prof. Soumen Chakrabarti, IIT-Bombay [Web](#) | [Publication](#) | [CSAW](#)

- Designed a scalable entity annotation and indexing framework in Hadoop. Designed custom-key partitioning strategies to mitigate the load-skew problem of a simple MapReduce implementation.
- Improved the accuracy of the entity disambiguation system by extracting more training data from Wikipedia and engineering features.
- Developed hadoop-based solutions for distributed training of millions of models.

User Response Prediction for Non-Guaranteed Display Ad Delivery (June - Dec'12)
Guide: Prof. Sanjay Chawla, Prof. Shivaram Kalyanakrishnan, Yahoo Labs [Web](#)

- Improved the accuracy of the user-click prediction model by mining new features.
- Analyzed Petabytes of data for feature signal & coverage.
- Used that analysis to find a training data partitioning strategy that showed promise when different models were trained on those different partitions.

Automated Campaign Optimization for Search Advertising (Jan - June'12)
Guide: Ajay Sharma, Director, UDA, Yahoo R&D [Web](#)

- Prototyped a tool that automated the account optimization for advertisers.
- Developed models for predicting #impressions, #clicks, #conversions, and handled sparsity issues by using community detection algorithms to cluster competitors together.
- Ultimately, given a budget, the tool used resource allocation algorithms to select appropriate bid amounts for various targeting combinations.

Web Search Personalization on the Client-side (Aug'10 - Dec'11)
Guide: Prof. Mangesh Bedekar, BITS-Pilani [Web](#)

- Prototyped a browser extension that modeled the user intention and re-ranked search results on the client-side.
- A neural model was learned to identify useful pages from user's browsing history using user's browsing patterns as features.
- Those pages were then used to build a user profile over time, which was ultimately used to personalize the search results on the client-side.

Online Comprehensive Examination Software (May - July'10)
Guide: P.B. Kotur, Director, Talent Transformation, Wipro InfoTech [Web](#)

Developed a Subjective Online Examination application using JSP and Servlets.

RELEVANT
COURSEWORK

Machine Learning, NLP, Structured Learning, Recent Trends in Deep Learning, Graphical Models, Web Search & Mining, Organization of Web Information, Advanced Data Mining

TALKS

“Web-scale Entity Annotation Using MapReduce”.
Invited Talk: Yahoo Summer School on IR & the Semantic Web, IISc, Bangalore [\[Slides\]](#)

REFERENCES

Dan Roth, Professor, UIUC — danr@illinois.edu [\[Thesis adviser\]](#)
Soumen Chakrabarti, Associate Prof., IIT-Bombay — soumen@cse.iitb.ac.in [\[R.A. adviser\]](#)
Denilson Barbosa, Associate Prof., Univ. of Alberta — denilson@ualberta.ca [\[R.A. adviser\]](#)
Shivaram Kalyanakrishnan, Assistant Prof., IIT-Bombay — shivaram@cse.iitb.ac.in [\[R.A. adviser\]](#)