

# Achal Shah

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Areas of interest: Scalability, Distributed Systems, Machine Learning

## Experience

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### Uber

*Sr. Software Engineer*

**San Francisco, CA**

*Sept 2015–Current*

- Michelangelo: Currently working on scaling Uber's Machine Learning platform.
- Reliability Platform: Built and operated Hailstorm, an high-throughput, distributed, load generation platform. Helped Uber make peak days "officially boring".

### Amazon.com

*Software Development Engineer*

**Seattle, WA**

*July 2013– Sept 2015*

- Amazon Fulfillment Technologies - Outbound Flow: The team owned services to predict incoming work that warehouses would receive, and the throughput that warehouse associates would achieve, to help optimize planning and operational decisions. I worked on the following:
  - Implemented caching strategies to cut down forecast creation times by 70%.
  - Worked on features to bring the error of both services down under 15%.
  - Contributed to a community-owned monitoring service to automate alarm creation, and drove its adoption across the Fulfillment organization.
- Amazon Fulfillment Technologies - Sortation Team: The team owned software to direct warehouse associates to sort items into individual shipments with minimal human effort. I helped scale the services to serve associates in new regions, and wrote new tools to interact with mechanical conveyance systems.

### Raytheon BBN Technologies

*Language Understanding Graduate Intern*

**Cambridge, MA**

*May 2012–August 2012*

Worked on the FUSE project, which involved predicting scientific trends based on bibliometric data.

- Implemented feature extraction models for the task of citation prediction. Also implemented cluster quality metrics such as cosine similarity, coherence values, distribution of subjects.
- Prototyped modules to combine semantically related clusters across periods of time.

## Education

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### University of Pennsylvania

*Master of Science and Engineering, Computer and Information Science*

**Philadelphia**

*2011–2013*

Relevant Coursework: Internet and Web Systems, Database and Information Systems, Mathematical Statistics, Machine Learning

### Institute of Technology, Nirma University

*Bachelor of Technology, Computer Engineering*

**Ahmedabad**

*2007–2011*

## Academic Papers and Projects

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### Personality, Gender, and Age in the Language of Social Media

*HA Schwartz et, al., DOI: 10.1371/journal.pone.0073791*

**PLOS ONE, September 2013**

Wrote the prototype to use LDA on a large collection of tweets to cluster words into topic-based word lists. The topics were then correlated with user personality traits.

### Distributed Search Engine CIS 555: Internet and Web Systems

**April 2013**

Built a scalable search engine from scratch. Individual components involved a Mercator-style crawler that started with a list of seed URLs, a component to create an inverted index from the crawled pages, a hadoop implementation to compute the page rank of pages and a servlet-based webserver to serve the results of web queries.

### Predicting Amazon Ratings CIS 520: Machine Learning

**August 2011**

Implemented and compared different machine learning algorithms along with some feature selection methods on a dataset of Amazon product reviews and their corresponding ratings to predict the ratings for unseen reviews.

### Automatic Text Summarization CIS 530: Computation Linguistics

**November 2011**

Built a system to use Named Entity Recognition, coreference resolution and other lexical features to generate summaries from a collection of documents.

### Independent Study: Dependency Eigenwords with Prof. Lyle Ungar

**September 2012**

Use dependency parse contexts to create eigenwords.

## Skills

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**Fluent in:** Java, Python, Go

**Frameworks & Toolkits:** Spring, Matlab, Mallet, Stanford NLP

**Version Control Systems:** Git

**Familiar with:** C/C++, Rust, Javascript, Scala

**Operating Systems:** Linux/Unix, OS X, Windows

**Databases and Data stores:** Oracle, MySQL, BDB

