Pallavi Gudipati | CS11B044

Indian Institute of Technology Madras

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Education

Program	Instituition	%/CGPA	Year of completion
Dual Degree (B.Tech+M.Tech), Computer Science and Engineering	Indian Institute of Technology Madras	**9.58**	2016
XIIth Std. (A.P. State Board)	FIITJEE Junior College	**95.9**	2011
Xth Std. (CBSE)	Kendriya Vidyalaya No.1, Uppal	**95.8**	2009

Scholastic Achievements

- All India Rank **568** in **Indian Institute of Technology-Joint Entrance Examination** 2011.
- All India Rank **589** in **All India Engineering Entrance Examination** 2011.
- Kishore Vaigyanik Protsahan Yojana **(KVPY)** Fellowship 2009 - SA Stream.

Projects

Google Docs and Drive **May-July 2014**

Google R&D *Bengaluru*

- Enabled the export of embedded Google Drawings, which are currently exported as images, in DrawingML format in both Google Sheets and Docs.
- Made a proof-of-concept for code restructuring that brings down the conversion time of Microsoft Excel documents to Google Sheets by 20%.
- Created an Android application for Google Drive that stores, parses and organizes all the user's receipts.

Scalable and Automatic training of Information Retrieval Models **May-July 2013**

Google R&D *Hyderabad*

- Worked with the Google Search Appliance team on the development of a new IR model that combines static as well as dynamic features differently.
- Implemented a flexible framework for the training, testing and comparison of the new model.
- Advantages of the new model: faster implementation and better interpretation.
- Yielded better results(MRR and NDCG) than the traditional model on two different corpora.

Extractive Summarization - Influence Maximization Approach **Aug-Sep 2014**

Natural Language Processing *IIT Madras*

- Applied techniques prevalent in Social Network Analysis, Community Detection and Influence Maximization, to solve the problem of Extractive Text Summarization.
- Analyzed the approaches on TIPSTER's cmp-lg dataset using ROUGE-1, with Global PageRank, Global Influence Maximization and Centroid-based method as baselines.

Web Graph Similarity for Anomaly Detection **Aug-Sep 2014**

Large-scale Graphs *IIT Madras*

- Studied the problem of detecting anomalous web graphs.
- Introduced two new types of anomalies: Vertex Label Exchange and Missing Random Connections.
- Proposed two modifications to Signature Similarity which takes into account vertex neighbourhood: Signature Similarity with Vertex Out-Degree and Signature Similarity with Average Neighbor Out-Degree

Context Sensitive Spell-checker **Aug-Sep 2014**

Natural Language Processing *IIT Madras*

- Created a context sensitive spell-checker that works at word, phrase and sentence levels.
- Word level spell-checker takes into account the restricted and unrestricted Damerau–Levenshtein distance.
- Phrase level spell-checker adds mixture of Ngram models and context words model to the previous level.
- Sentence level spell-checker adds parts-of-speech tags to the previous model.

Graph Mining based Clustering of Protein-Protein Interaction Networks **March-April 2014**
Computational Systems Biology *IIT Madras*

- Applied a significant sub-graph mining algorithm based on GraphSig to PPI networks.
- Used the significant sub-graphs as features to cluster the organisms.
- Considered four different strains of *E.Coli* and observed that the tradition phylogeny of an organism does not affect its network structure.

Query Auto-completion and Query Expansion **March-April 2014**
Xapian *IIT Madras*

- Implemented query auto-completion and query expansion in Xapian, an open source indexing library.
- Applied various design patterns like Flyweight, Factory and Decorator patterns. Also, integrated WordNet with Xapian for thesaurus support.
- Used a combination of stemming and synonym expansion to achieve query expansion.

Anomalous trajectory detection using Isolation based approach **March-April 2014**
Data Mining *IIT Madras*

- Applied iBAT, an isolation based approach, to Beijing's T-Drive dataset to mine anomalous taxi trajectories.
- Incorporated two improvements into the existing algorithm: a measure to account for loops in the trajectory and a modified isolation score to account for trajectories overlapping with the test trajectory.

Twinfluence **March 2013**
Yahoo! Hack U! *IIT Madras*

- Part of the four-member team that won the 'Budding Hackers' award.
- Created a Twitter based web application that predicts the influence of a Twitter handle, both geographically as well as analytically.
- Worked with Twitter API, Google Maps API and the Django framework.

Conferences

- Grace Hopper Conference - 2013, Bengaluru, India
- Grace Hopper Conference - 2014, Phoenix, Arizona, USA

Course Work

- Data Structures and Algorithms
- Natural Language Processing
- Introduction to Databases
- Operating Systems
- Data Mining
- Memory Based Reasoning in AI
- Distributed Algorithms
- Computer System Design
- Machine Learning
- Language Translators
- Indexing and Searching in Large Databases
- Computer Networks
- Reinforcement Learning
- Theory and Applications of Ontologies

Labs

- Digital Circuits Lab (Verilog)
- Data Structures and Algorithms Lab (C++)
- Language Translators Lab (Built a compiler for a subset of Java.)
- Computer Networks Lab(C)
- Computer Programming Lab (C)
- Assembly Language Programming Lab (x86)
- Computer System Design Lab (Cache Simulation, Tomasulo, Cache coherence)
- Operating Systems Lab (Built a new OS.)

Skills

- Softwares: C/C++, Python, ML, Prolog, Java, HTML, JavaScript, Matlab
- x86 Assembly Language
- HDL: Verilog
- Text Editors: Vim, Gedit

References

- **Shailesh Kumar**
  Senior Software Engineer at Google
  shkumar@google.com
- **Manav Raman**
  Software Engineer at Google
  mraman@google.com