Dheeraj Mekala

Computer Science & Engineering
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Google Scholar

Education

University of California, San Diego *2019 - present*
MS in Computer Science
Advisor: Prof. Jingbo Shang

Indian Institute of Technology Kanpur *2013 - 2017*
B.Tech in Computer Science and Engineering

Work Experience

Sprinklr India Pvt. Ltd. *Apr 2018 - Jul 2019*
Data Scientist, Machine Learning Team

- Architected and built Sprinklr AI's visual insights module, being used by over 1200 Sprinklr clients.
- Developed in-house computer vision models for visual sentiment, gender, age, and inappropriate content detection.
- Built a scalable system capable of running models over 500 million messages per day using Kafka and Elasticsearch.
- Developed a dockerized auto-scaling framework which is deployed in kubernetes for image classification.

Sprinklr India Pvt. Ltd. *Jul 2017 - Apr 2018*
Product Engineer, Paid Advertising Team

- Developed a centralized monitoring environment which gathers system metrics as well as docker run-time metrics.
- Developed an end-to-end pipeline that incorporated DoubleClick tracking in ads.
- Implemented core functionalities to improve the feature of importing, exporting ads.

Microsoft India *May 2016 - Jul 2016*
Machine Learning Intern

- Built case routing system in Microsoft Dynamics CRM, which predicts the ideal assignment candidate for a case.
- Built a robust pipeline which connects Microsoft Dynamics CRM and Azure Machine Learning studio.

ASnTech Engineering Services *Dec 2015 - Jan 2015*
Machine Learning Intern

- Designed an algorithm to speed up search queries related to the location of the vehicle, from 120 sec to 5 sec.
- Designed an algorithm that dynamically analyses accelerometer data of a moving vehicle to identify outliers and driving style of the driver.

Publications

Preprints

* - equal contribution

1. **META: Metadata-Empowered Weak Supervision for Text Classification**
   Dheeraj Mekala, Xinyang Zhang, Jingbo Shang
   (under review), 2020.

2. **Bayes-optimal Hierarchical Classification over Asymmetric Tree-Distance Loss**
   Dheeraj Mekala, Vivek Gupta, Purushottam Kar and Harish Karnick.
   arXiv:1802.06771, 2018.

Conference Publications

3. **Contextualized Weak Supervision for Text Classification**.
   Dheeraj Mekala, Jingbo Shang
   Association for Computational Linguistics (ACL), 2020 **(Virtual Talk)**.

4. **User bias removal in review score prediction**.
   Rahul Wadbude*, Vivek Gupta*, **Dheeraj Mekala**, Harish Karnick.
   ACM India Joint International Conference on Data Science and Management of Data (CODS/COMAD) 2018.

5. **SCDV: Sparse Composite Document Vectors using soft clustering over distributional representations**.
   Dheeraj Mekala*, Vivek Gupta*, Bhargavi Paranjape, Harish Karnick.
   Conference on Empirical Methods in Natural Language Processing (EMNLP), 2017 **(Long Oral)**.

Academic Projects

Learning Symbolic Music Representation | | *Mar 2020 - June 2020*
Deep Learning for Sequences, Prof. David Kriegman, UCSD
- Designed rhythm-conditioned autoencoder model which generates embeddings of polyphonic multi-track music.
- Successfully reconstructed the music while preserving the rhythm of each track.

Reconstruction Algorithms for Compressive Sensing | | *Jan 2020 - Mar 2020*
Convex Optimization, Prof. CK Cheng, UCSD
- Studied reconstruction algorithms like OMP, GRASP with noisy measurements and investigated their robustness.
- Imposed additional linear constraints and studied these reconstruction algorithms under these constraints.

Acute Kidney Injury(AKI) Prediction in ICU Patients | *Sept 2019 - Dec 2019*
Introduction to Biomedical NLP, Prof. Michael Hogarth, Prof. Shamim Nemati, UCSD
- Constructed a risk prediction model to detect AKI in the first 72 hours of admission to the ICU using MIMIC-III dataset.
- This work shows that early risk prediction of AKI can be achieved in critically ill patients by utilizing structured clinical observations and clinical progress notes.

Portmanteau Generation | | | **Best Project Award**. *Sept 2019 - Dec 2019*
Statistical Natural Language Processing, Prof. Ndapa Nakashole, UCSD
- Converted text generation task into sequence labelling task by incorporating structural constraints.
- Designed BiLSTM-Regression ensemble model to generate portmanteaus and outperformed existing techniques.

Bayes-optimal Hierarchical Classification over Asymmetric Tree-Distance Loss | | *Sept 2019 - Dec 2019*
Undergraduate Research Project, Prof. Purushottam Kar, Prof. Harish Karnick, IITK
- Designed $O(nlog(n))$ algorithm to find Bayes optimal hierarchical classification over asymmetric and symmetric loss.
- Designed $O(log(n))$ algorithm to find Bayes optimal hierarchical classification over asymmetric loss under established logical assumptions.

MIPS Simulator *Dec 2016 - May 2017*
Computer Architecture, Prof. Mainak Chaudhuri, IITK
- Implemented a fully functional MIPS integer processor with support for floating point instructions.
- The final pipelined processor has 2 bypass-paths and interlock logic to analyze the effect of stalls in a pipeline.

Analysis of Data Prefetching Algorithms | | *Dec 2016 - May 2017*
Computer Architecture, Prof. Mainak Chaudhuri, IITK
- Researched data prefetching algorithms to reduce data access time.
- Designed and implemented modified version of AMP algorithm and analyzed it with several prefetching algorithms.

Go-MIPS Compiler *Dec 2015 - May 2016*
Compilers, Prof. Subhajit Roy, IIT Kanpur
- Built an end-to-end cross compiler of Go in python using ply package for lexing and parsing.
- Implemented referencing-dereferencing operators, loops, functions, scope check of variables, recursion and memory stack.

Object Recognition in Surveillance Videos *Dec 2015 - May 2016*
Machine Learning Tools and Techniques, Prof. Harish Karnick, IITK
- Extracted relevant frames from camera feed to reduce space required for data storage and identified moving objects(ROI).
- Researched techniques for feature extraction, background subtraction and experimented with multiple classifiers.

MovieDB - A Database for Movies | *Dec 2015 - May 2016*
Introduction to Databases, Prof. Sumit Ganguly, IITK
- Created a secure movie database and user interface where a user can review, rate and watch trailers of movies.

NachOS Implementation | *Aug 2015 - Dec 2015*
Operating Systems, Prof. Mainak Chaudhuri, IITK
- Implemented system calls, shared memory interface and demand paging.

- Implemented and analyzed scheduling algorithms like FIFO, round-robin, shortest job first, and non-preemptive scheduling algorithms.

Selected Awards and Honors

- Ranked in Top 0.5% in JEE Advanced (IIT-JEE) 2013 among 150,000 candidates *2013*
- Ranked in top 0.2% in JeeMains-BTech 2013 among 1,400,000 candidates *2013*
- Bronze Medal and Certificate of Merit (top 15 in India) for National Science Olympiad '13 *2013*
- Awarded KVPY Fellowship from Government of India. *2012*

Professional Responsibilities

- *Graduate Teaching Assistantship* - Dept. of Computer Science and Engineering, UCSD
  - TA Lead on Remote Teaching *Summer 2020*
  - Mathematics for Algorithms and Systems Analysis - *Prof. Oliver Braun* *Summer 2020*
  - Introduction to Data Mining - *Prof. Jingbo Shang* *Spring 2020*
  - Introduction to Programming in Java - *Prof. Adalbert Gerald Soosai Raj* *Winter 2020*
- *Regional Academic Mentor* - Dept. of Computer Science and Engineering, IIT Kanpur *2014 - 2015*
- *Student Guide* - IIT Kanpur *2014 - 2015*