Manas Bundele

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EDUCATION

UNIVERSITY OF TEXAS AT DALLAS | **MS in Computer Science (Thesis) [Specialization in Intelligent systems]** **Aug 2020**
Cum. GPA: 3.81/4.0

INDIAN INSTITUTE OF TECHNOLOGY, JODHPUR | **B.Tech. in Computer Science & Engineering** **May 2016**

SKILLS

Proficient: C, C++, Ruby on Rails, Python, Postgresql

Familiar: Scala, Javascript, MATLAB, SQL, LaTeX, HTML, CSS, jQuery

Tools & Utilities: Git, Big Data (Hadoop, MapReduce, Spark, Kafka, ELK stack, NoSQL systems), Tensorflow, Scikit-learn, NLTK, Spacy, AWS, REST APIs, Caching (Memcached, Varnish), Numpy, Pandas, Cron, OpenNMT, FastText, OpenCV

Areas of interest: Software Engineering, Machine Learning, Natural Language Processing, Computer Vision, Data Science

WORK EXPERIENCE

MACHINE LEARNING INTERN | **Etsy Summer of Vision, Etsy Inc. | NY, USA** **Jul 2020 - Oct 2020**
Technologies used: [Python, Tensorflow 2.0, Scikit-learn]
Project: 'Let Etsy Pick Your Shoe for You!'

- Designed and implemented a novel technique towards scene-aware, compatible fashion product recommendation with over **5% improvement** in accuracy over the chosen baseline on STL dataset
- Approach consisted of a pre-trained Resnet50V2 model, along with specialized layers and KNN to learn the style compatibility between a user-uploaded outfit and a product from Etsy's inventory (without fine-tuning) using Triplet Loss

COMPUTER SCIENCE GRADER | **UT Dallas CS Department [Part-time]** **Aug 2018 - May 2019 | Feb - May 2020**

- Got nominated for the **'Best Grader'** Award in the department
- Graded the tests, quizzes and assignments of a batch of 75 undergraduate students for the course Discrete Mathematics

SOFTWARE ENGINEER | **Voylla Fashions Pvt. Ltd. | Jaipur, India** **May 2016 - Jun 2017**
Technologies used: [Ruby on Rails, Postgresql, HTML, CSS, jQuery, Javascript, Git, AWS, Caching, Linux]

- Project LP Boost: **Solely designed and implemented** a Landing Page Ranking algorithm that **increased the Average Order Value** by **30%** in collaboration with the Marketing & Business Development team
- Project Solidus: Voylla Website Upgradation (Team of Eight developers) and Data Migration.
  - Developed and optimized order pipeline(in a team of 4), improving its **performance (~seconds)** for seamless experience
  - **Responsible for** data migration, a **critical aspect of the project**, which could be totally tested in production environment
- Performed regular code reviews & unit testing; built, debugged and deployed software to production; debugged highly critical issues; mentored juniors on several key projects

PROJECTS

DISCERNING INSIGHTFUL CONTEXTS IN IMAGE CAPTIONING BY LEVERAGING COMMONSENSE KNOWLEDGE
Master's Thesis [Link] | Advisor: Dr. Jessica Ouyang **Aug 2019 - Jul 2020**
Thesis Committee: Dr. Dan Moldovan & Dr. Vincent Ng

- Proposed a novel technique for ranking different regions of the image on the basis of their saliency
- Developed 3 novel techniques to discern insightful contexts by incorporating commonsense knowledge into the descriptions
- Awardee of **Master's Research Fellowship** by Office of Research and Office of Graduate Education during Summer 2020
- Technologies used: [Python, NLTK, SpaCy, LightGBM, PySpark, Word Embeddings and Knowledge Graphs]

CODE-SWITCHED MACHINE TRANSLATION **[GitHub] | Dr. Jessica Ouyang** **Oct 2019 - Dec 2019**

- Worked on neural machine translation from code-switched Hindi-English text to English in a team of 3 members
- Performed literature survey, identified the problems involved in existing systems, trained a Transformer model and implemented 3 improvements over the chosen baseline
- Technologies used: [Python, OpenNMT, FastText, Word Embeddings, litcm]

INTERACTIVE MEDICAL IMAGE SEGMENTATION & 3D VISUALISATION | B.Tech. project [Demo, Paper]
| Guide: Dr. Chiranjoy Chattopadhyay & Dr. Gaurav Harit Jul 2015 - May 2016

- Got nominated for the **Best B.Tech. Project Award**, one of the 3 projects nominated in the entire batch of 2016
- Developed a semi-automated segmentation technique for efficient image analysis for 3D visualisation as well as image guided surgery at reduced costs and minimized expert intervention
- Handed over the efficient segmentation software and 3D visualisation software to **All India Institute of Medical Sciences(AIIMS), Jodhpur** for the cost-effectiveness analysis of patients' reports
- Technologies used: [C++, MATLAB, OpenCV]

FAKE OPINION DETECTION [GitHub] | Dr. Anurag Nagar Jul 2019

- Developed a supervised learning model using PySpark and MLlib that was able to detect fake reviews in YelpNYC dataset
- Consisted of various pre-processing and feature engineering techniques, solved the class imbalance problem

CONVOLUTIONAL NEURAL NETWORK DESIGN FOR MODIFIED MNIST [GitHub] | Dr. Haim Schweitzer Apr 2019

- Implemented a residual network using Tensorflow in Python and included batch normalization, non-linearities, dropout, l2 regularization to improve accuracy and reduce overfitting
- Achieved over 90% accuracy in 4 & 1/2 min on testing data of 10k images with modified different random training datasets of 6k images of size 7*7

SENTIMENT ANALYSIS FOR STREAMING TWITTER FEEDS [GitHub] | Dr. Anurag Nagar Jun 2019

- Created a Spark Streaming application using Scala that performs sentiment analysis on streaming Twitter feeds for a given topic & used Elasticsearch, Logstash and Kibana (ELK) for sentiment visualization

PUBLICATION

• **Manas Bundele**; "ICONIC : Discerning Insightful Contexts in Image Captioning By Leveraging Commonsense Knowledge", MS Thesis. Link: https://utd-ir.tdl.org/handle/10735.1/9021

• Pratik Kalshetti, **Manas Bundele**, Parag Rahangdale, Dinesh Jangra, Chiranjoy Chattopadhyay, Gaurav Harit and Abhay Elhence; "An Interactive Medical Image Segmentation Framework Using Iterative Refinement", Computers in Biology and Medicine, February 2017, pp. 22-33.

VOLUNTEER EXPERIENCE

DATA SCIENCE VOLUNTEER | NoSchoolViolence

RECENT ACADEMIC ACHIEVEMENT

- Recipient of **Etsy Summer of Vision (ESV) Fellowship** 2020
- Recipient of **Master's Research Fellowship** at UTD during Summer 2020 2020
- Recipient of **Jonsson School $1000 Graduate Study Scholarship** 2018 - 2019
- Journal Publication honored with **"Meritorious"** status in Honored papers 2017, Computers in Biology and Medicine doi: 10.1016/j.compbiomed.2018.05.020 2018
- B.Tech. Project, one of the three projects nominated from the institute for **'Best B.Tech. Project'** award 2016
- Among the **top 0.7% students in the country**; securing All India Rank 3471 in IIT-JEE 2012 among 500,000 candidates 2012