Manav Nitin Kapadnis

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EDUCATION

Year	Degree/Exam	Institute	Course	Score
2019-24	B.Tech + M.Tech (Dual Degree)	Indian Institute of Technology Kharagpur	Major - Electrical Engineering	9.18 CGPA
2018-19	Class 12th	Shubham Raje Junior College, Thane	All India Senior School Certificate Examination	91.24 %
2016-17	Class 10th	D.A.V Public School, Thane	Central Board of Secondary Education	10 CGPA

PUBLICATIONS

Leveraging Pre-trained Language Models for Key Point Matching (EMNLP 2021)
International Conference on Empirical Methods in Natural Language Processing (EMNLP) 2021
- Achieved a best MAP score of **0.9096** and **2nd place** on the **global leaderboard**, for the identification and ranking of relevant key points
- Designed and implemented a pre-trained language model based architecture to predict the match score for key point and argument pairs
- Improved the MAP by adding syntactic features such as **POS Tags**, **TFIDF scores** etc, and data augmentation using external datasets

Compositional Committees of Tiny Networks (ICONIP 2021)
28th International Conference on Neural Information Processing | Bali, Indonesia | Advisor - Prof. Tomas Maul
- Designed and implemented a new form of compositional ensembles that speeds up computations in deep neural networks
- Achieved an increase in speed by **25.7** times in a standard CPU setup as compared to 6-layered CNN without any reduction in accuracy
- Surpassed **MLP-Mixer** (SOTA) in terms of speed by exploiting the composition of the hidden representations of classifiers

Fine-grained Intent Classification in the Legal Domain (AAAI 2022)
36th AAAI conference on Artificial Intelligence
- Proposed a new dataset in the Legal Domain for the task of fine-grained as well as coarse grained intent classification
- Achieved an accuracy score of **0.74** for the task of document classification by leveraging Pre-trained Language Models such as **DeBERTa**
- Established a concrete baseline with an accuracy score of **0.902** for fine-grained intent classification using **JointBERT**

INTERNSHIP AND RESEARCH EXPERIENCE

Institute for Data, Systems, and Society | Massachusetts Institute of Technology (MIT)
Racism and Violent Incidents Detection in Historical Archives | Advisor - Kiran Garimella | (Oct '21 - Dec '21)
- Developed a complete framework to enhance the analytical study of violent incidents throughout the country over a period of 100 years
- Applied **BART**, a pre-trained Transformer based Language Model as a classifier to classify articles into violent and non-violent incidents
- Achieved a best **accuracy** score of **94.5%**, **recall** score of **92%** and a **precision** score of **88%**
- Currently working with a team from ISB Hyderabad and MIT to study the causation of the violence incidents and riots in the country

Financial Computing and Analytics Group | University College London (UCL)
Governance Pulse: AI for real-time governance | Advisor - Prof. Philip Treleaven | (Dec '20 - April '21)
- Formulated a **Governance based analytical project** providing real-time monitoring information to the Board members of company
- Developed a **Time - Series** model for forecasting stock price movements using **Long Short-Term Memory** on LSE data
- Implemented a **RoBERTa** based text-mining tool for discovery of hidden semantic structures in a text body
- Achieved a **ROUGE-1 score** of **0.259** for the task of summarizing the contents of financial reports of company

Complex Networks Research Group | Indian Institute of Technology Kharagpur
A New Intent-Based Metric for Legal Document Summarization | Advisor - Prof. Niloy Ganguly | (May '21 - June '21)
- Developed a new **summarization metric**, which takes the help of intent of the document for the evaluation of generated summary
- Achieved better relevance and overall human satisfaction scores as compared to other automated metrics such as **BLEU** and **ROUGE-L**
- Implemented **JointBERT** for the task of automated intent phrase extraction, as well as document classification **(submitted in NAACL'22)**

RELEVANT SKILLS/COURSEWORK

CS/ML: Probability and Statistics | Algorithms | Programming and Data Structures | Machine Learning | Natural Language Processing
Libraries / Frameworks: Tensorflow | PyTorch | HuggingFace | Keras | Spacy | Numpy | Pandas | Regex | Matplotlib | Seaborn | Plotly
Languages: C | C++ | Python | MATLAB

POSITIONS OF RESPONSIBILITY

Technology Robotix Society, IIT Kharagpur
- Lead a 3-tier team to execute the annual Robotix fest & conducting workshops with over **1000+ participants** from across the country
- In charge of **Makerspace - an open source lab for robotics** enthusiasts seeking guidance & component
- Mentored 100+ students in the **IEEE Winter School of AI & Robotics** workshops on Machine Learning Image Processing

Kharagpur Data Analytics Group, IIT Kharagpur
- Successfully organized the first **Kharagpur Data Science Hackathon**, featuring **1200+ teams** and a total **prize pool of INR 50000**
- Organized an interactive month-long **Data Science Workshop**, designed for freshmen with over **300 participants** from across the country

EXTRA CURRICULAR ACTIVITIES

- Mentoring five freshmen students under the **Student Welfare Program**, under the aegis of the Dean of Student Affairs, IIT Kharagpur
- Selected as an **Indian Delegate** to represent IIT Kharagpur at **Harvard US-India Initiative '21** amongst more than 2000 applicants