Divyanshu **Kumar**

MACHINE LEARNING RESEARCHER

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Research Interests

Natural Language Processing	Privacy Preserving Machine Learning	Recommendation Systems
Knowledge Graph	Optimization	Geomtric Deep Learing

Education

Narula Institute of Technology   *Kolkata, India*
BACHELOR OF TECHNOLOGY, ELECTRONICS AND COMMUNICATION ENGINEERING   *August 2018 - June 2022*
- Cumulative Performance Index / CGPA: 8.78/10.0

Research Experience

Indian Institute of Science   *Bangalore*
RESEARCH ASSOCIATE, DR. PRATHOSH AP   *June 2022 - Present*
- Examined state-of-the-art architectures like MBART, IndicBART, and IndicBERT for Hindi to Sanskrit Translation
- Re-designed the IndicBART to incorporate Parts-of-Speech by adding an embedding pos layer on the encoder part.
- Implemented a Parts-of-Speech model to generate pos embeddings same dimension as the input embedding.
- Developed a script to scrap Bilingual data(Hindi and Sanskrit) using BeautifulSoup and trafilatura.

Work Experience

AIcrowd   *Remote*
INTERN   *Sep 2021 - Mar 2022*
- Developed a web page from scratch for the explanation of Evaluation Metrics using Jupyter-Book.
- Created baselines for NLP puzzles(using LSTM, BERT, and ALBERT), and Computer Vision(using CV2, YOLO, and Detectron).
- Constructed puzzles for tasks like image classification, image segmentation, and sentiment analysis with the help of GANs and transformers.

FactMata   *Remote*
MACHINE LEARNING ENGINEER INTERN   *Nov 2021 - Dec 2021*
- Created a multi-class classifier for text analysis using XGBoost and Naive Bayes Classifier.
- Improved state-of-the-art algorithm by 8% using Grid Search and Gradient-Based Optimisation.
- Applied Back Translation, Word, Sentence, and Synonym Augmenter for Data Augmentation.

HighRadius   *Remote*
INTERN   *Jun 2021 - Oct 2021*
- Examined data preprocessing by data cleaning, normalization, and feature selection.
- Built a predictive modeling system for next payment date prediction using XGBoost.
- Developed web agents in Java and deployed them in production which parses 10 remittances per minute.

Helppr.ai   *Gurugram, India*
NLP RESEARCH INTERN   *Mar 2021 - Apr 2021*
- Trained and fine-tune ALBERT, BERT, BART, and T5 for text summarization.
- Deployed the above to production for customers to analyze their feedback and achieved an accuracy of 78%.
- Optimized the inference and training time in production by 30%.

Projects

EnvisEdge   *Remote*
OPEN-SOURCE PROJECT, NIMBLEEDGE   *January 2022 - Present*
- Implemented federated matrix reconstruction feature for the recommendation.
- Developed documentation website from scratch for Python APIs using Sphinx.
- Improved inline comments for a better understanding of the codebase.

Home Air Quality Monitoring System   *Narula Institute of Technology*
UNDERGRADUATE PROJECT   *November 2020 - January 2021*
- Developed home air quality monitoring system using temperature cum humidity sensor and CO_2 sensor.
- Diagnosed the performance using an LCD which is attached to the sensors.
- Developed a web analytics app for analyzing air quality using Python and deployed it on the Heroku server.

Relevant Coursework

Data Structures and Algorithm	Intro to Machine Learning	Data Analysis(∗)
Numerical Computation	Digital Signal Processing	Digital Image Processing
Probability and Statistics	Discrete Mathematics	Natural Language Processing(i and ∗)
Multivariable Calculus(∗)	Analysis I - Real Analysis(∗)	

∗: Online   *i: In progress*

Skills

Languages	Python | C/C++ | Golang | Javascript | Java
Frameworks	Flask | TensorFlow | PyTorch | Sklearn
Utilities	Git | Docker | LaTeX | Vim

Extracurricular Activity

Mentor OPENMINED *Oct 2020 - Jan 2021*
- Upbring Mentees towards learning about OpenMined through a well-directed Udacity Course on Secure and Private AI using **PySyft.**
- Resolving Technical Doubts and guiding them to the right resources to make them even with the Community and bring meaningful contributions.
- Maintaining a centralized record on the progress of the Mentees and participate in Weekly Syncs to discuss the progress.

SEO Analyst and Mentor SCHOLARSHIP TRACK *Aug 2020 - Mar 2021*
- Initiative towards building the world's largest community of students for accessing opportunities, by connecting them with past achievers and a global cohort.
- Organized live QnA with past scholars, mentorship opportunities, updates on upcoming scholarships and deadlines, essay and resume critique sessions, etc.

Miscellaneous

- Kaggle Notebook Expert.
- Received Udacity Scholarship for Machine Learning and Cloud Native Foundations.
- Enthusiastic about Privacy and learning interesting stuff about Artificial Intelligence, Programming languages, and networking.