Mansi Uniyal

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Academic Qualifications

Year	Degree	Institute	CPI
2019 - 2023	B.Tech (EE), Minor (CS), Micro (AI)	Indian Institute of Technology, Kharagpur	8.98 CGPA
2019	CBSE (XII)	Delhi Public School, Indirapuram	94.8 %
2017	CBSE (X)	Delhi Public School, Indirapuram	10 CGPA

Experiences

Research Fellow at **Microsoft Research, India** *(Oct'23 - Present)*
- As part of PROSE teams, leveraged LLMs, for generating & validating conversational benchmarks for Excel-Copilot evaluation
- Demoed & built Suggestion & Ranking system for automated formula-value completions, on new columns in multiple Excel tables

Research Data Science Intern at **Mphasis Limited** - [Report] *(May'22 - Aug'22)*
- Achieved 89% accuracy in generating labels for supervised learning using Weak Supervision, corrected errors & created clean labels
- Benchmarked & assessed HuggingFace variations of DALL-E model for Text2Image generation, to create images within 5-30 sec.
- Built & deployed text classification-AutoML module: data profiling, pre-processing, vectorization, prediction on AWS marketplace

Machine Learning Engineer at **Chi SquareX** - [Repository] *(Jan'21 - Nov'21)*
- Showcased 10% improvement in results on SimpleNet with data augmentation method using CycleGAN, for Neural Style Transfer
- Visualized, pre-processed & implemented Transfer Learning on YOLO model for Object Detection: of 4 types of fastener dataset

AI intern at **Jalla Labs Private Limited** *(Dec'20 - Feb'21)*
- Developed end-to-end NLP-based model for Intelligent Recruitment System to get sorted list of applicants from 140+ resumes
- Extracted information from frequent file formats: doc, pdf, using Non-OCR methods & customized Name Entity Recognitions
- Saved 30% time over manual selection of candidates by building query-based sorting of resumes for 10 roles concerning 200 skill set

Publications

Server-Side Local Gradient Averaging and Learning Rate Acceleration for Scalable Split Learning *(Apr'21 - Nov'21)*
Deakin University, [LoR] [Paper]
Conference: International Workshop on Trustable, Verifiable & Auditable Federated Learning in Conjunction with AAAI, 2022
- Proposed variation of Split-Fed Learning for boosting performance on image classification with FMNIST, & CIFAR-10 datasets
- Enhanced privacy, communication efficiency, & client-server imbalanced training problem along with scalability of performance
- Analyzed effect of parameters: learning rate, contribution of different losses & procured 87.5% accuracy on architecture of 20 clients

Deep Learning based architecture for Semantic Segmentation of Aerial Imagery *(Sep'20 - Dec'20)*
Indian Institute of Technology, Kharagpur, [LoR] [Paper]
Conference: International Conference on Unmanned aerial systems in Geomatics, 2021
- Built CNN-based, Modified UNet model, with Transfer Learning on geo-spatial domains of Austin, Chicago, Kitsap, & Vienna
- Obtained accuracy: 98%, f1-score: 93% by incorporating morphological methods: Erosion & Dilation for an improved performance

Projects

Molecule Generation using Contrastive VAE - University of Liverpool, [Report] *(Apr'22 - Jul'22)*
- Analyzed effects of change in learning rate, batch size, scalability, & embedding lengths of SMILES representation in ZINC dataset
- Obtained accuracy: 93%, & analyzed effect of incorporating contrasting learning on VAE models for faster & robust performance

Eye movement type categorization - IIT Kharagpur, [Report] *(Oct'20 - Jan'21)*
- Self-curated labeled data from 10k raw time-series data, using pre-processing & thresholding method to classify 16 fixation points
- Achieved F1-score: 99.5% using Sliding Window & 89.4% using Rolling Forecast metrics on the proposed BiLSTM-LSTM model

Scholastic Achievements

- Secured AIR-**3214** in JEE Advanced, AIR-**1261** (99.92‰) in JEE Mains, AIR-**65** (99.97‰) in JEE Mains(B.Arch), for 2019
- Obtained **zonal rank of 4**, & **international rank of 67** at **NSO** (National Science Olympiad), in the academic year 2018-19
- Cleared **Pre-RMO** & **RMO** for 2017-18 & 2018-19, & qualified **INMO** (Indian National Mathematical Olympiad), for 2017-18

Skills and Expertise

- **Programming Languages & Libraries:** C, C++, Python, Docker, Keras, TensorFlow, PyTorch, SpaCy, NLTK, Sklearn
- **Skills:** Deep Learning, Machine Learning, Data Science, Data Analysis, Probability & Statistics, Computer Vision, NLP

Relevant Courses

Natural Language Processing, IIT Kharagpur*	Machine Learning Foundations & Applications, IIT Kharagpur*
Algorithms-I, IIT Kharagpur*	Statistics with Python, University of Michigan, Coursera
Programming & Data Structure, IIT Kharagpur*	Computer Vision, Winter School of AI & Robotics

Positions of Responsibility

General Secretary at International Relations Cell, IIT Kharagpur *(May'21 - June'22)*
- Mentored team of 40 Junior Associates and 20 Student Members in conducting various events, case studies, & proposing new ideas
- Conducted: FT Panel Discussion, JDP Open House, Hult Prize Oncampus, SAIP Open House session, Campus France webinar