KSHITIZ SHARMA

E-mail: kshitiz.sharma38@gmail.com
Mobile: (+91) 9717013056
LinkedIn: https://in.linkedin.com/in/sharmakshitiz
GitHub: https://github.com/ktzsh/

RESEARCH INTERESTS

- Deep Learning
- Computer Vision
- Machine Reading Comprehension
- Neural Machine Translation
- DevOps and MLOps
- Reinforcement Learning

EDUCATION

INDIAN INSTITUTE OF TECHNOLOGY DELHI (IITD) **| B.Tech. in Mathematics and Computing, Delhi, India**, 2018

PROFESSIONAL EXPERIENCE

VMOCK INDIA PVT. LTD., Gurgaon, India **2018 - Present**

Principal Data Scientist (July 2021 – Present)

- Facilitated all Data Science teams across business verticals, contributing to Technical Management and R&D.
- Advised teams working on problems across Data Science domains such as Knowledge Graph, Language Generation, Video / Image Processing, NER and Text Similarity and Retrieval.
- Transformed the organization structure of Data Science teams and standardized Machine Learning development cycle using tools like MLFLow, DVC, Monorepo and AWS Sagemaker reducing lead and cycle time KPIs.
- Executed initiative to containerize all Machine Learning capabilities and set-up CI/CD pipelines, Horizontal Autoscaling and led research teams working on standardizing research to train and make large scale Transformer models production ready using Onnxruntime, Deepspeed integrations, Mixed Precision training, Quantization and Knowledge Distillation resulting in up to 2-3x speedup in training and inference times on some workloads.

Senior Data Scientist (December 2019 – July 2021)

- Supervised a team of 3 people overseeing all research, development, reviews and deployment for the Resume Parser Capability, powering the flagship Resume Product used across more than 130+ Countries and in leading Educational Institutes such as CMU, UofT, Chicago Booth, University of Oxford, Columbia, Kellogg etc.
- Added multilingual parsing capability to the product. Solved the Reverse Translation and Token Alignment problem using unsupervised IBM Model 1 and HMM models like Berkeley Aligner. Worked on developing an in-house Joint Machine Translation and Token Alignment system using Transformer based encoder-decoder model with 44 BLEU Score and AER of 7.
- Deployed production ready models with TensorFlow Serving and implemented Async Task Queue pipeline using Celery and AWS SQS leading to more than 50% server cost reduction

Data Scientist (July 2018 – December 2019)

- Improved and maintained a robust resume parser that required converting unstructured data into structured data and extracting useful information using techniques of NLP.
- Trained in-house BiLSTM CRF based NERs with Character Embeddings and Attention Mechanism delivering high recall and precision (>92 % F1 Score) for recognizing various entities as positions, organizations, locations, universities, degrees, section titles etc.

RESEARCH EXPERIENCE

AUTONOMOUS OBJECT TRACKING WITH UAVS, New Delhi, India **2018 - 2019**

B.Tech Project supervised by Prof. Subhashis Banerjee at IIT Delhi

- Developed an autonomous agent capable of tracking an object using techniques of Computer Vision and Deep Reinforcement Learning. Implemented Q-Learning networks like DQN/Double DQN with Experience Replay and

simulated the task with a drone tracking a car on the ground moving in simple motions, governed by real world like physics. Deployed a modified version of Microsoft AirSim Simulator for training and testing.

OBJECT DETECTION AND TRACKING FOR DRIVERLESS CARS, New Delhi, India **2016**

Research Project supervised by Prof. Subhashis Banerjee at IIT Delhi

- Tackled the problem of object detection and tracking using machine learning algorithms. We explored slower region proposal based classification models (R-CNN and its variants - Fast, Faster R-CNN), and faster end-to-end regression based models (such as YOLO) for detection. Subsequently, leveraged detection models for feature extraction and generating detection heatmaps along with LSTMs (Long Short Term Memory) to capture temporal information in sequences/videos for robust tracking and occlusion handling.

INTERNSHIPS

ARTIFACIA INC., Bangalore, India **2017**

Research Intern

Visual Recognition (Multi-Label Classification)

- Implemented a Machine Learning algorithm to identify all the tags/labels relevant to a given image using a VGG16 ConvNet for extracting image features (Trained on NUS-WIDE dataset) and a a LSTM-based recurrent layer on top for modelling label dependencies & label predictions. The model was capable of identifying both the co-occurrence of labels, and the attention regions in images. Used Beam-Search algorithm for decoding at test time.

Media Engagement Prediction

- Devised a framework for predicting the engagement (number of likes) over time, given an Instagram user handle and a query image. Using image features from a ConvNet and hand-crafted features from User Profile (Follower's count, Average Engagement, tagged users, day posted), developed the entire pipeline for production.

POSITIONS OF LEADERSHIP AND RESPONSIBILITY

INDIAN INSTITUTE OF TECHNOLOGY (IIT) DELHI, New Delhi, India **2016 - 2017**

Web Management Coordinator

- Web Management Coordinator, Alumni Affairs & International Programme (AAIP).
- Developed and maintained IIT Delhi's AAIP's website and portal, which handled more than 8000 alumni, students, and faculty registrations by the end of tenure. Also contributed in organizing AAIP events as a Coordinator.

INDIAN INSTITUTE OF TECHNOLOGY (IIT) DELHI, New Delhi, India **2015 - 2016**

House Fine Arts Club (FAC) Representative

- Managed and conceptualized various events (House Day, BHM Night), and various competitions (inter/intra house). Held workshops for juniors, managed events for the FAC during cultural festivals, at the university level as FAC Representative. Our house finished in the top-3 positions at two events.

TECHNICAL SKILLS

Programming Languages:	Python, C, C++, CUDA, OpenMP/MPI, Golang, OCaml
Machine Learning:	Tensorflow & Keras, PyTorch, Hugging Face, ONNX, Deepspeed, Caffe, Darknet
Development Tools:	MLFlow, DVC, Celery, Redis, AWS Copilot, AWS Fargate, AWS Sagemaker, AWS SQS, Mongo, Apache, SQLAlchemy, AWS Console, Git, Docker
Web Programming:	PHP, HTML, CSS, JavaScript, Laravel, Jekyll

EXTRA-CURRICULAR ACHIEVEMENTS

2015 - Our 5-member team stood 1st in Split Painting competition at IIT Delhi; Theme: Paradigm Shift.
2015 - Our 5-member team stood 4th in Wall Painting competition at IIT Delhi.
2012 - 1st position - Documentary making Competition on theme Life in Mayoor' at Mayoor School.
2011 - 1st position - Product Advertisement Making Competition at Mayoor School Cultural Festival.
2010 - Received Best Artist in Secondary School award at Mayoor School Cultural Festival.