Kuldeep Sharma

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Experience

Pactera APAC Jan. 2021 – Present

Senior AI Consultant — 'Python, PyTorch, OpenCV, MeCab, CNNs, AWS, Git' *Tokyo, Japan*

- Building probabilistic *WordCorrector* model for Japanese language, used *Sent2Word Tockenizer* & *Bayes Theorem*
- Designing a RPA framework to do *Japanese Document Analysis* for our clients, involves both content & structure
- Leading a team to develop an *AI Receptionist* system, customized *facenet-pytorch* for *Face Recognition* & *Tracking*

AWL Inc. Dec. 2019 – Dec. 2020

AI Researcher — 'Python, PyTorch, TensorFlow, OpenCV, CNNs, Git' *Tokyo, Japan*

- **State Estimation & Analysis for Retail Industries**
  - Build a *State Estimation* model using *Multi-Label Cls.*, improved it using temporal consistency on static pred.
  - Designed an architecture to learn correlations in labels using *Attention Mechanism*, attained a superior model
  - Successfully *Qunatized* model and deployed on an edge-device, ready for the production and mass-deployment
- **AWL Trainer: Better Model Training Pipeline**
  - Designed a training pipeline, it auto-trains model incorporating variations in dataset with few labeled dataset
  - Utilized generator models and fine-tuned GANs e.g. *StyleGAN* & *UGATIT* for synthetic datasets generation
  - Implemented a *Contrastive Self-Supervised Learning* for *Domain Adaptation* to auto-train domain differences

TUMCREATE *(TUM & NTU Collaboration)* Nov. 2017 – Nov. 2019

ML Researcher — 'Python, C++, PyTorch, Caffe, OpenCV, CNNs, Git' *NTU, Singapore*

- Developed cost-efficient & real-time vision based edge devices for *Intelligent Traffic Monitoring* by CNN's pruning
- Designed a novel CNN pruning technique, achieved *10x speed up* & *7x size reduction* of CNNs without losing acc.
- Deployed pruned CNNs using Caffe's C++ API, presented working prototypes to *Ministry of Transport Singapore*

Scantist May 2019 – Nov. 2019

Data Engineer, Part-Time — 'Python, MongoDB, PostgreSQL, Neo4j, Airflow, Git, Java' *Singapore*

- Implemented a knowledge graph of *Java libraries* to analyse library dependencies and remove *security vulnerability*
- Crawled raw library metadata to NoSQL database, processed dependencies to structure and store in PostgreSQL
- Implemented dynamic pipeline to schedule & track upcoming raw libraries and updating them in *knowledge graph*

Projects

Scene Understanding for Autonomous Robots | *'Python, Caffe, OpenCV, C++, Git'* May 2016 – Dec. 2016

- Developed a *Scene Understanding* visual system for robots, worked on *Objects Classification, Detection & Tracking*
- Improved system robustness(*10-15%*) by incorporating *KLT Feature Tracker* & *Kalman Filter* with *Deep Learning*
- Implemented programs for *6D pose estimation* of objects with *Camera Calibration*, used them for localizing objects

Mesh Generation of Human Models | *'C++, MATLAB, Git'* May 2015 – Apr. 2016

- Implemented a *3D Mesh Generation* framework for solid object given nodes location using *Delaunay Triangulation*
- Improved for *Human Body Mesh Generation*, merged with a simulation software to study impacts during accidents

Publication

Evaluating the Merits of Ranking in Structured Network Pruning ICDSC EAI 2020, Singapore

- Presented plastic behavior of CNNs and proposed, contrary to main belief, removing random channels for pruning
- Proposed a novel & simple GFLOPs-aware iterative CNN pruning technique, can lower the inference time by *15%*

Education

Indian Institute of Technology Delhi New Delhi, India (2013 – 17)

Bachelor of Technology in Industrial Engineering ***Top 0.1% in JEE 2013***

Relevant Coursework: *Machine Learning, Computer Vision, Attention Mechanism, Object Recognition & Detection, Linear Algebra, Data Structure & Algorithms, Probability & Statistics, Graph Algorithms, OS*

Technical Skills & Interests

Languages & Tools: Python(*PyTorch, TensorFlow, Caffe, OpenCV*), C++, Swift(iOS), MATLAB, R, AWS, Linux, CUDA, Git, Docker, MongoDB, PostgreSQL, Airflow, Neo4j, JIRA, Trello, Google Colab, VS Code, Microsoft Office

Interests: Travelling, Pensive Discussions, Running, Cycling, History, Astronomy, DOTA2 & Reading Research Papers