Ansh Jain

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EDUCATION

University of Wisconsin Madison **Sept 2021 - Dec 2022**
Master of Science in Computer Science *Madison, Wisconsin*
Courses: *Machine Learning, Matrix Methods in ML, Topics in DBMS, Deep Learning for Visual Recognition, Advanced NLP*

Netaji Subhas Institute of Technology, University of Delhi **Aug 2015 – June 2019**
Bachelor of Engineering in Information Technology - 8.3/10 (First Class with Distinction) *Delhi, India*

EXPERIENCE

Amazon (Amazon Lab126) **May 2022 - August 2022**
Applied Science Intern *Sunnyvale, California*

- Worked as part of the Halo Health Vision team, for accurate detection of health indicators derived from visual information. The project involved the detection of 3D shape and pose from 2D images in the wild, using limited labelled data
- Hands-on experience with training large model in PyTorch, learnt 3D geometry, and SOTA models like SMPL, STRAPS

Samsung Research Institute Bangalore **June 2019 - July 2021**
Senior Software Engineer *Bangalore, India*

- **Video Classification**
- Researched various datasets (Kinetics, Youtube 8m, UCF101, etc.) and models, converted a state-of-the-art model from PyTorch to Tensforflow for on-device video classification, integrated with Samsung Video Editing Application
- Ported model to TensorFlow Lite and using CMake created a shared library (.so file) for using the model in C++
- **Video Editor Features**
- Developed low-quality filtering and similar image removal modules in java for AI Stories feature, which creates a video summary from videos and images selected by the user based on the scene detected, timestamp, and location information
- Developed zoom and pan effect for S21 in Single Take Mode highlighted during the launch event of the flagship
- Worked on features such as 360 video editing, tone filters, decorators, transition effects, for the video editor application

Indian Institute of Technology, Kanpur **Dec 2018 – March 2019, Jan 2020 - June 2020**
Research Intern *Kanpur, India*

- Worked on Visual Question Answering (VQA) research problem to improve state-of-the-art accuracy
- Used PyTorch to develop the framework, Python libraries(OpenCV, NumPy, Scikit-learn, MatplotLib, HDF5) for visualization and preprocessing of data, and achieved 1.5% improvement over baseline by using attention networks.

PROJECTS

Supervised Contrastive approach for Active Learning | *Language Modeling, PyTorch, BERT* **Jan 2022 - April 2022**

- Leveraged Contrastive learning strategies to overcome the limiations of Masked Language Modeling for text classification task. Achieved SOTA in an AL setting with a fraction of the data compared to previous approaches
- Hands-on experience with contrastive training for BERT, and AL acquisition strategies such as ENTROPY, Alps, BADGE

Multi-Modal Self Supervision for attention | *Python, Pytorch, VS Code* **Feb 2020 – July 2020**

- Developed a novel method to improve the accuracy of any attention-based networks using weak supervision called Self-Supervision, obtained improved results for both Text/Image Classification, and Visual Question Answering
- Developed the technique using the PyTorch framework and gained experience and knowledge of ML frameworks such as ResNet, CNNs, LSTMs achieved a 3.5% improvement over baseline

RF Jamming Classification using ML | *NS3, C++, Python, Scikit-Learn* **Feb 2019 - May 2019**

- Worked on the problem of classification of Radio Frequency jamming attacks using Gradient Boosting algorithm
- Collected dataset for different jamming attacks through NS3 simulation, evaluated different algorithms (Random Forest, KNN, Decision trees, Gradient Boosting), successfully achieved state-of-the-art using Gradient Boosting

PUBLICATIONS

- **"Self Supervision for Attention Networks"**, A. Jain*, B. N. Patro*, Kasturi G. S* (*equal contribution) and V. P. Namboodiri, published at 2021 IEEE Winter Conference on Applications of Computer Vision (WACV)
- **"Detection and Classification of Radio Frequency Jamming Attacks using Machine learning"**, Jain A.*, Kasturi G.S.*, Singh J.* (*equal contribution), published in JoWUA Vol. 11, No. 4 journal (2020)

TECHNICAL SKILLS

- **Languages**: Java, Python, C++
- **Tools/Frameworks**: Tensorflow, Pytorch, Docker, SQL, Eclipse, Jupyter, Anaconda, Linux, Android Studio

CERTIFICATIONS AND AWARDS

- **Coursera:** Structuring Machine Learning Projects (DeepLearning.AI), Build Basic Generative Adversarial Networks (DeepLearning.AI), Machine Learning (Stanford University), **Other:** Data structures and Algorithms
- Received 2 Spot Awards from Samsung for excellent/innovative work on the Video Classification project (July'20) and clearing Professional Level Coding test (Dec'19) based on advanced data structures and algorithms