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 Machine Learning, 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

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.

Samsung Research Institute Bangalore **May 2018 – July 2018**
Software Development Intern *Bangalore, India*

- Created a GUI with backend for Lightweight Machine-to-Machine (LWM2M) device management for IoT devices working on Constrained Application Protocol (CoAP) using the Java Swing framework in Eclipse
- Among the top 3% to clear advance level coding test based on data structures and algorithms on the first attempt

PROJECTS

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

Paraphrase Generation Graph Convolution | *Python, NumPy, Pandas, OpenCV* **Jan 2020 - April 2020**

- Developed model to obtain improved natural language understanding of sentences, successfully improved Blue score by 3% over state-of-the-art for "Quora Question Pairs" Dataset using Graph Convolution Network
- Model development in PyTorch, data processed using Python libraries (OpenCV, NumPy, Pandas), hands-on experience with algorithms like Graph Convolution Network, LSTM, Global Attention Network, Encoder-Decoder

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, SQL, Android Studio, SkLearn, Eclipse, Jupyter, Anaconda, Linux

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