Vaibhav Balloli

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Academic Education

- **BITS Pilani, Hyderabad Campus** — **Hyderabad, India**
  BE (Hons) Electronics and Communication Engineering, CGPA: 8.36/10 — *May 2020*
  Undergraduate Courses: Information Retrieval, Machine Learning, Game Theory, Computer Graphics, Operating Systems, FPGA Systems and Design, Cryptography, Computer Architecture
  Coursera: Reinforcement Learning(UoAlberta), Deep Learning(deeplearning.ai), Data Structures and Algorithms(UCSD), Bayesian Methods for Machine Learning(NRUHSE)

Skills

- **Programming languages**: C, C++, Python, Swift, Java, Julia, Javascript, MATLAB, Bash
- **Programming frameworks**: PyTorch, TensorFlow, Swift for TensorFlow, SymPy, Numpy, ROS, sklearn, PyQt5, Django, Django Rest Framework, NodeJS, OpenGL, OpenCL, CUDA, LaTeX
- **Hardware**: Raspberry Pi, NVidia Jetson, TX1, TX2, Arduino, FPGA, Sensors, Wireless modules, Soldering, Quadcopters

Internships

IST, Austria(remote, IN) — **Hyderabad, India**
Visiting Scientist, Research — *May 2020*

- Working on model compression under Dr. Dan Alistarh

CANDLE Labs — **IIT Hyderabad, India**
Neural Architecture Search for GPU-like hardwares, Undergrad Thesis — *August - December 2019*

- Studied Neural Architecture Search for designing low latency, energy-efficient nerual network architectures for GPUs under Prof. Sparsh Mittal
- Implemented Efficient NAS algorithm using PyTorch
- Used PyTorch wrappers for CUDA for benchmarking and objective function implementation

AlphaICs — **Bangalore, India**
AI Intern — *June - August 2019*

- Devised efficient data structures, algorithms and protocols for AlphaIC's AI board and deep learning library
- Built an application in python forinter-operability of deep learning models and quantization of these models for faster inference using Tensorflow, ONNX and PyQT5.

Projects

VECTORS — **Hyderabad, India**
VidEo Comm. Through Opportunistic Relays and Scalable Video Coding — *September 2018 - January 2019*

- Worked on Scalable Video Coding encoded video on a DTN(Disruption Tolerant Network) developed for Android devices under Prof. Abhishek Thakur [1]. Presented Camera-ready paper at WiSPNET 2019, Chennai, India.
- Developed an Android App cross-compiling SHM and JSVC for ARM processors to encode recorded video to send on the network.
- Used Opportunistic Network Environment(ONE) to run simulations and automatic generation of reports from results

SmartCampus — **Hyderabad, India**
Co-Founder | Developer — *September 2017 - May 2019*

- Co-founded SmartCampus, a student group who setup the Cashless system on campus, handling transactions worth 15 million rupees every year
- Built and deployed an Android app to make cashless payments on campus sustaining an active user count of 50 per cent of campus population
- Built a prototype recommender system yet to be deployed on the production-server using information retrieval and modern recommender system techniques

Open Source

TensorFlow **Hyderabad, India**
Swift for TensorFlow *2020*

- Contributed to core Swift for TensorFlow APIs in optimizers, layers.
- Added image classification models to the S4TF models repository

Google **Hyderabad, India**
JAX *2020*

- Contributed to activation functions in the Google JAX framework

Publications

- [1] Thakur, Abhishek, Vaibhav Balloli, and Arnav Dhamija. "Video Streaming using Scalable Video Coding over Opportunistic Networks." 2019 International Conference on Wireless Communications Signal Processing and Networking (WiSPNET). IEEE, 2019. DOI: 10.1109/WiSPNET45539.2019.9032752