Hemanth Kothapalli

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Education

Indian Institute of Technology, Hyderabad **Jul. 2019 – May. 2023**
Bachelor of Technology in Computer Science & Engineering and Engineering Science *Hyderabad, India*

Relevant Coursework

- Computer Networks
- Foundations of ML
- Deep Learning
- DS and Algorithms
- Probability in Computing
- Operating Systems
- Theory of Computation
- DBMS

Research Publications and Achievements

Scaling IoT MUD Enforcement using Programmable DataPlanes **Jul 2022 – May 2023**
Accepted to IEEE/IFIP NOM'S23, Miami, USA

IOT MUD Enforcement in the Edge Cloud using Programmable Switch **Jul 2021 – May 2022**
Accepted to ACM SIGCOMM'22 workshop on Security for P4 – FFSPIN, Amsterdam, Netherlands

VAK UG Research Excellence Award, 2023 | Network Security Researcher @ IITH **Apr 2023**
Honored as the sole recipient of the top undergraduate researcher award for the 2023 batch

Technical Skills

Languages, Security Tools: Python, C/C++, Java, P4, Splunk SOAR, Elasticsearch, Kibana, SDN Controllers
Machine Learning skills: NumPy, Pandas, Scikit-learn, TensorFlow, Keras, Pattern Recognition, Matplotlib
Development, Frameworks: SQL, JavaScript, Django, Flutter, Git, YAML, CI/CD

Work Experience

Engineer (AISW) | Qualcomm **Jul 2023 – Present**

- Accelerated large model conversion by designing a **lazy weight-loading system** and core graph optimizations, significantly reducing memory overhead and processing time for models exceeding **100** parameters.
- Engineered **64-bit DMA** support to overcome the 4GB memory limit, enabling efficient execution for the largest production LLMs and eliminating **multi-partition descriptor** complexity.
- Scaled validation infrastructure to manage **200,000+** test cases, automating framework unification and increasing test coverage for critical compiler releases across **3** SOC platforms.
- Reduced onboarding latency for new model architectures (e.g., Whisper, Llama) by building automated pipelines that cut manual configuration time by **50%** and ensured robustness in nightly testing.

Software Intern | Qualcomm **May 2022 – Jul 2022**

- Developed and released **Xlog Analytics**, a web-based tool for analyzing large error log files using Django, JavaScript, HTML, and CSS adopted by Qualcomm's **AI Software** team after successful testing and validation.

Teaching Assistant (TA) | IIT Hyderabad **Jul 2021 – May 2023**

- Assisted in *Foundations of Machine Learning (CS5590-S)*, *DBMS-II (CS3563)*, and *Data Structures (CS2233)*.

Projects

Image Transition | *Python, Machine Learning*

- Implemented Variational Autoencoder model for image interpolation between input pairs, demonstrating improved accuracy on public and custom weather datasets.

UDP-based FTP tool | *Multi-thread, CPP*

- developed a UDP-based FTP tool with Reliable Data Transfer mechanisms and multithreaded optimizations, achieving around 15% higher throughput and 30% lower latency than standard TCP file transfer tools in lossy network conditions.

PhD's Progress Management System | *Flutter, Django*

- Led a team of three in developing an application for PhD scholars of IITH to track their academic progress and to send alerts when they are nearing to an event deadlines right from their admission to their final thesis submission.

Hand gesture recognition using CNN's | *Python, Machine Learning*

- Built a CNN model and trained it with a dataset developed by capturing hand signs (following ASL convention) through webcam, binarizing, segmenting, and resizing them to 64x64 pixels and achieved an accuracy of 99.95%.