Akshita Ramya Kamsali

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Education

PhD in Electrical and Computer Engineering
Purdue University, IN, USA *Jan 2021 -*
GPA: *3.72/4.0*
Courses: Computer Vision, Probabilistic Graphical Models, Deep Learning, Artificial Intelligence, Linear Algebra Applications, Random Variables
Teaching Assistant: Electrical Engineering Fundamentals I

B.Tech. in Electrical Engineering with Minor in Biomedical
Indian Institute of Technology(IIT) Hyderabad, India *Aug 2016 - May 2020*
Major GPA: *9.00/10* Minor GPA: *9.83/10*
Courses: Convex Optimization, Statistical Inference, Topics in Information Theory and Coding, Random Processes, Concentration Inequalities, Theoretical and Computational Neuroscience
Teaching Assistant: Probability, Statistics, Data Structures, Digital Signal Processing, VLSI Design, EE Senior Project

Experience

Robot Vision Lab, Purdue University
Graduate Research Assistant, Prof. Avinash Kak *July 2022 -*
- Working on improving Vision Transformer-based models for simultaneous object detection and tracking in Video data across popular benchmarks.

NeuroAI Lab, Purdue University
Graduate Research Assistant, Dr. Joseph Makin *June 2021 - June 2022*
- Analyzed the mapping function between hidden representations of self-supervised Speech-to-text models (e.g. wav2vec, DeepSpeech2) and neural responses in different regions of auditory cortex. Obtained an encoding performance of 0.4 - 0.6 R^2 correlation.
- Proposed a novel Convolutional Transformer model for decoding neural activity to text. Achieved a 8% improvement in average Word Error Rate (WER) over RNN-based baseline on TIMIT dataset.

Purdue University
PURE Summer Scholar, Dr. Mohit Verma *May 2019 - July 2019*
- Proposed a novel lysis method for DNA extraction and amplification for low-cost, user-friendly Bovine Respiratory Disease Diagnosis device.
- Created a working prototype of the proposed technique with test accuracy over 80%(with soiled samples) and each test costing less than 5 USD.

Wisig Networks
Summer Research Intern *May 2018 -July 2018*
- Developed a robust and optimized Down-link Channel by integrating physical and MAC layers for 5G test-bed communication modules.
- Improved throughput of the link by 13% migrating hardware modules from embedded C language to VHDL.

Publications

Experimental Verification of Enhanced Photoluminescence in p-doped GaAs using Fluorescence Lifetime Measurements, WRAP 2019
K. A. Ramya, T. Jinal, K. Saurabh and N. K. Emani

Technical skills

Languages: `Python, C++, C, MATLAB,` LaTeX
ML/Data Science: `PyTorch, JAX, Tensorflow, HuggingFace, NumPy, OpenCV, SciPy, SKLearn, Pandas`
Tools: `Docker, SLURM, Tensorboard, WandB`