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, Quantum Detector and Sensors, Random Variables

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, Neuromechanics, Neurophysiological Signal Processing

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.

Electrodynamics Group, Purdue Universoty
Graduate Research Assistant, Dr. Zubin Jacob *Jan 2021 - July 2021*
- Designed and performed experiments to study absorption and reflection of radiation in IR region in W-YSZ stack for Thermal Barrier Coatings (TBC). Achieved 1000K temperature difference.
- Simulated various alloy transmission and reflection properties when paired with YSZ. Simulations showed 1500K temperature difference. Further, fabricated the stack in cleanroom using various techniques.

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.

Technical skills

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

Publications

K. A. Ramya, T. Jinal, K. Saurabh and N. K. Emani, "Experimental Verification of Enhanced Photoluminescence in p-doped GaAs using Fluorescence Lifetime Measurements," WRAP, Guwahati, India, 2019, pp. 1-3
doi: 10.1109/WRAP47485.2019.9013731

Academic Achievements

- **Academic Excellence Award** for the highest CGPA in the Department for the Academic year 2017-2018 and graduated 2^{nd} in class
- **Purdue Undergraduate Research Experience (PURE 2019)** One of the two students selected from IITH. This program was funded by Purdue University to perform research over summer at WL campus.
- **Tokyo Innovation Summer Program 2018, University of Tokyo**: One of the two students from IIT Hyderabad selected. This program was *fully funded* by **Government of Japan** through **JASSO**
- **JEE Mains** - AIR 39 (Architecture) AIR 719 (Engineering) among 1,000,000 students, **JEE Advanced** - AIR 2674 among 150,000 students in the year 2016

Academic Responsibilities

Purdue University

Graduate Teaching Assistant *Fall 2022, Spring 2021*

Electrical Engineeering Fundamentals Lab I

IIT Hyderabad

Teaching Assistant *Jan 2018 - Apr 2020*

Statistics, Probability, Data Structures, Vector Calculus, Digital Signal Processing, VLSI Design