KAAVYA SRI RAMARAPU

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SKILLS

- **HPC & systems:** Linux (Ubuntu), HPC Clusters, SLURM job scheduling, Docker containers, CUDA (GPU acceleration for training)
- **AI & Frameworks:** PyTorch, TensorFlow, Scikit-learn, Computer Vision, Open CV, Deep Learning, GANs(Basics).
- **Embedded systems & Electronics:** Arduino, Sensor interfacing, Xilinx FPGA, ARM Cortex, SPI, LCD, Motors, Proteus, PCB testing and soldering.
- **Programming:** Python, C, Bash/Shell Scripting (basic).
- **Tools & Platforms:** Jupyter Notebook, VS code, Git (basic).
- **Data & Visualization:** NumPy, Pandas, Seaborn, Matplotlib, Power BI.
- **Validation and Documentation:** Debugging, Failure analysis, Technical Documentation, Report Writing
- **Soft Skills:** Slack, Microsoft office, Google Suite, Outlook.

EDUCATION

Master of Science in Electrical Engineering **Aug 2022 – May 2025**
Texas State University
Bachelor of Technology in Electrical and Electronics Engineering **Aug 2016 – Sept 2020**
Jawaharlal Nehru Technological University, Hyderabad, Telangana.

EXPERIENCE

Graduate Research Assistant **May 2024 – May 2025**
HiPE laboratory, Ingram School of Engineering - San Marcos Texas.

- Developed SLURM job scheduling scripts and supporting new users in running workloads on HPC clusters.
- Generated utilization and performance reports using Bash scripting to support resource allocation and system planning.
- Troubleshot job submission failures and software module conflicts, ensuring stable and efficient cluster operations.
- Monitored cluster performance and system usage patterns to support strategic resource planning and future infrastructure upgrades.
- Authored troubleshooting guides and documentation for recurring issues to streamline user onboarding and reduce support overhead.

Graduate Instruction Assistant **August 2022 – May 2024**
Microprocessors Laboratory, Ingram School of Engineering – San Marcos, Texas.

- Guided laboratory sessions on embedded programming and hardware interfacing using Arduino, Xilinx FPGA/ARM-based microprocessors.
- Assisted students in debugging communication protocols such as SPI, UART, and I2C, and resolving integration challenges with displays, sensors, and motors.
- Prepared instructional materials and troubleshooting references to reinforce understanding of microprocessor concepts and lab procedures.
- Supported student project teams by reviewing designs and ensuring reliable operation of hardware prototypes.

Testing Engineer Intern **February 2021 – June 2022**
Pragna Electronics and communication – Hyderabad, Telangana.

- Gained firsthand knowledge of circuit operation and real-world PCB design procedures in a laboratory setting.
- Assembled and validated PCBs through soldering, wiring, and functional verification against design specifications.
- Performed visual inspection and component-level testing to confirm design integrity and identify failures.
- Assisted engineers in preparing product documentation and quality assurance reports.

Summer Intern
Electric Loco Shed, Indian Railways, Hyderabad **Jun 2019 – Jul 2019**

- Supported diagnostics and maintenance of locomotive converters, electrical machines, and propulsion control systems, Documented repair steps and contributed to improved troubleshooting procedures.

Student Intern
Transmission Corporation of Telangana, Hyderabad **Jul 2019 – Aug 2019**

- Participated in workshops on substation operation and grid monitoring systems. Contributed to technical reports summarizing findings and observations for engineering staff.

PROJECTS

Thesis: Environmental Emotion Recognition for Children with ASD
Texas State University | Aug 2022 – May 2025

- Designed and deployed a dual- path deep learning framework integrating ResNet-18 for environmental features and Inception-ResNetV1 with MTCNN for facial emotion recognition.
- Implemented a weighted fusion layer to balance inputs from environment and facial models, improving system reliability when one input was weak or missing.
- Built and executed reproducible training pipelines on SLURM-managed HPC clusters.
- Applied specialized loss functions and learning-rate scheduling to stabilize training under class imbalance and improve convergence efficiency.
- Documented workflows, versioned configurations, and testing protocols to support repeatability and cross-team collaboration, aligning with industry best practices.

Head Gesture Wheelchair Control and Health Monitoring System
ACE Engineering College | Jan 2020 – Mar 2020

- Built a real-time wheelchair navigation system using Arduino and motion sensors to interpret head movements.
- Integrated temperature and heartbeat sensors into the design to provide health monitoring alongside navigation.
- Developed hardware and software interfaces for stable sensor communication and reliable motor control.
- Conducted troubleshooting and validation tests to improve system performance and ensure safe operation.

CERTIFICATIONS

- Learning Linux Command Line | **Aug 2025**
  Build GAN's and Diffusion Models with TensorFlow and PyTorch, LinkedIn Learning | **Mar 2024.**
- Generative AI concepts, Data camp | **Feb 2024**
- Introduction to Statistics, Data camp | **Dec 2023.**
- Intermediate Data Visualization with ggplot2, Data camp | **Nov 2023**.
- Generalized Linear Models in Python, Data camp | **Oct 2023.**
- Analyzing and Visualizing Data with Microsoft Power BI, Data camp | **Sep 2023.**
- Embedded Systems VECTOR INDIA Advanced Course | **Mar 2021 - Sept 2021**
- Electrical-CAD, The National Small Industries Corporation Ltd. Technical Services Center certification | **Jun 2018 - Jul 2018**.

PRESENTATIONS

- **Poster Presentation in 1st TXST Data and AI Day at Texas State University Center for Analytics and Data Science (TXST CADS)**
  "Environment Emotion 'Vibe' Recognition - A Deep Learning Approach for Children with ASD" **-** Presented at Ingram School of Engineering Research Day and Translational Health Research Symposium (2025) - Showcased dual-model classification framework with GAN component proposal.

RELEVANT COURSE WORK

- Digital Image Processing
- Machine Learning for Engineering Applications
- Computer Architecture
- Engineering Economic Analysis
- Python and C programming
- Microprocessors and Microcontrollers.
- Power Electronics
- Statistical Methods