# KAAVYA SRI RAMARAPU

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# SKILLS

* **Programming:** Python, C, Bash/Shell Scripting.
* **HPC & systems:** Linux, SLURM, HPC Clusters, Docker containers, CUDA(GPU Acceleration for training).
* **AI &Data:** PyTorch, TensorFlow, Scikit-learn, Computer Vision, Open CV, Deep Learning, GANs(Basics), Prompt Engineering, NumPy, Pandas, Seaborn, Matplotlib, Power BI.
* **Embedded & Electronics:** Arduino, FPGA (Xilinx), ARM Cortex, Microcontrollers, SPI, UART, PCB testing &soldering.
* **Tools:** Jupyter Notebook, VS code, Git hub, WinSCP, Putty.
* **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.

# PROJECTS

**Thesis: Environmental Emotion Recognition for Children with ASD**

**Texas State University | 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 | 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

* + Git Essential Training | **Sep 2025**
  + 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**

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

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