

Harshavardhan Reddy Thummala

Email: harsha25@knights.ucf.edu, sunny25harsha@gmail.com

Phone: 4078186469

Education

University of Central Florida:

Orlando, Florida

Master of Science in **Electrical and Electronics Engineering** GPA: 3.833

Jan 2021 - July 2022

Advisor: Dr. Ronald Demara.

Thesis: Providing Fault Tolerance for "Probabilistic Inference Networks Using MRAM-based Stochastic Neurons" with the help of Triple Modular Redundancy

Jawaharlal Nehru Technological University (JNTU), Hyderabad

Telangana, India

Bachelor of Technology in **Electronics and Communication Engineering**

Aug 2015 – July 2019

Research Interests

Micro and Nano Systems, Spintronic-based Architectures

Bioelectronics, Low power VLSI Circuits, Analog VLSI design

Reconfigurable Computer Architecture, Field Programmable Gate Arrays (FPGA)

Computer Networks

Experience

University of Central Florida

September 2021 - present

Role: Graduate Assistant

Advisor: Dr. Ronald Demara.

Responsibilities:

Proctoring the exams at Evaluation and Proficiency Centre.

Graduate Coursework

EEL6812 Introduction to neural Networks, **EEL6762** Performance Analysis of Computer and Communication Systems, **EEL5722C** FPGA Design, **EEE5352** Semiconductor Materials and Device Characterization, **EEE5332C** Thin Film Technology, **CDA5106** Advanced Computer Architecture, **EEE6558** Advanced Radar Systems, **CAP5150** Foundations of Computer Security.

Technical Skills

Programming Languages: C, C++, Python, MATLAB, Assembly, Embedded C, Pearl.

HDL Programming: Verilog,

Microcontrollers: 8051, Atmega328, Atmega128

FPGA: Xilinx Vivado.

Operating Systems: Windows family, Linux, Unix, Windows Server.

Circuit level tools: Proteus Design Suite, ModelSim, Hspice.

Software Packages: Microsoft Office, Keil uVision, MASAM 8.0, PSPICE, Arduino IDE, Cisco Packet Tracer.

Academic Projects

Bomberman FPGA Video Game:

October 2021 – December 2021

Description: This project focuses on implementing a digital system on an FPGA that plays a simple game that is like Bomberman.

Skills learned: Programming and Interfacing of Basys3 Artix-7 FPGA Board, Developing Finite State Machines for various Modules and generating animation effect on VGA monitor with the input.

Video Demonstration:

[Bomberman Game implementation using BASYS3 Board FPGA project - YouTube](#)

Fabrication of FinFET:

January 2021 – March 2021

Using Diffusion, Lithography and Sputtering Process a Finet with 100nm channel length is fabricated in the Clean Room at UCF.

Smart Home Security System Using Raspberry Pi3 and GSM, Team: 3 members,

January 2019 – March 2019

Description: In this project we intend to develop on IOT based security surveillance system using Raspberry Pi-Single Board Computer (SBC) with Wi-Fi network connectivity.

Advisor: Prof. Dr. Dhiraj Sunehra, Dept of ECE, JNTUH Jagtial

Vehicle Accident Alert System Using GPS and GSM, Team: 3 members, October 2018 – December 2018
Description: This system incorporates an embedded system that contains GPS, GSM, MQ-135, Vibration sensor, DFR0076 and a microcontroller to provide location and alert when there is an accident.

Advisor: Prof. Dr Dhiraj Sunehra, Dept of ECE, JNTUH Jagtial

Led Cube (8*8*8), Team: 2 members, December 2017 – June 2018
Description: It is a 3-Dimensional display device which runs with the help of ATMEGA328 microcontroller, 8 D-flipflops (74HC574) and a decoder (74HC138).

Advisor: Prof. S. Praveen Kumar, Dept of ECE, JNTUH Jagtial

PC Based notice board using 8051 Microcontroller, Vector India private Limited June 2017 – July 2017
Skills learned: Architecture, Programming and Interfacing of 8051 microcontroller.

Robotic Vehicles: Line Follower Robot, Obstacle Avoider Robot, Dual tone Multiple Frequency Robot (DTMF), Sphere Drone.

Volunteer Experience

University of Central Florida September 2021 - present

CHIDA: Computer Hardware Innovation and Design Association

Role: Treasurer

University of Central Florida August 2021 -present

IEEE PES Society: Institute of Electrical and Electronics Engineers Power and Energy Society

Role: Treasurer

University of Central Florida September 2021 - present

STSTL: Student Laureates of STEM Teaching and Learning

Role: Treasurer

Technical workshops

Design and development of small satellites JNTU Hyderabad

IOT (Internet of Things) JNTUH-CEJ

Image Processing and Its Applications JNTUH-CEJ

Ethical Hacking IIT Hyderabad

Basic Telecom Technology at Regional Telecom Training Center BSNL Hyderabad

Activities Leadership and Involvement

IETE, IEEE: Member

Electronics and Robotics Club: Member

Emblazon Project Expo: Coordinator.

Line Follower Robot Race Event: 1st Prize for the fastest line follower robot.

Flash Mob 2K18: Coordinator and lead dancer.

College team captain: Basketball and Table tennis

VLSID17: Attended 30th International Student Conference on VLSI Design and Embedded systems

Other Experience

University of Central Florida July 2021 – September 2021

Outdoor Adventure:

Role: OAC Attendant

Responsibilities:

- Assist students in signing up for OA Trips
- Manage OAC with the highest customer service level.
- Encourage LNT policies to participants
- Maintain positive energy even when things are hectic or stressful.
- Perform maintenance routine and repair to renting equipment.

Role: Lake Claire Attendant

Responsibilities:

- Manage all front desk activities.
- Instruct patrons in use of equipment and provide basic fitness information.
- Issues locker and key assignments.
- Responsible for guest check-in, orientation, and assistance they require.
- Performs clerical duties, to include answering phones and scheduling personal training.
- Perform daily general cleaning and maintenance tasks in the facility.

Undergraduate Coursework

Electronics: Switching theory and Logic design, Pulse Digital Circuits, Electronic Devices and Circuits, Electronic Circuit Analysis, Computer Organization and Operating Systems, Linear and Digital IC Applications, VLSI Design, Digital Design using Verilog HDL, Microprocessors and Microcontrollers, Embedded Systems Design. Electrical Circuits, Principles of Electrical Engineering, Electronic Measurements and Instrumentation.

Communication: Computer Networks, Computer Programming, Information Technology Workshop, Control Systems Engineering, Signals and Systems, Analog Communications, Digital Communications, Digital Signal Processing, Digital Image Processing, Cellular and Mobile Communications, Satellite Communications, Radar Systems, Wireless Communications and Networks, Microwave Engineering, Antennas and Wave Propagation, Electromagnetic Theory and Transmission lines.

Labs: Computer Programming lab, Basic Simulation LAB (MATLAB), Microprocessors and Microcontrollers Lab, Integrated Circuits Applications and HDL Simulation Lab, Electronic Circuits and Pulse Circuits Lab, Electrical Technology Lab, Digital Signal Processing Lab, Analog Communications Lab, Microwave Engineering and Digital Communication Lab.

Basic Courses: Mathematical methods, Calculus- I, II, Probability theory and Stochastic Processes, Engineering Physics, Engineering Chemistry.

Other courses: Intellectual Property Rights, Managerial Economics and Financial Analysis, Management Science.
