

PUNITHA KAMASANI

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SUMMARY

Graduate Computer Engineering student specializing in Embedded Systems, IoT, and Networks, seeking internship/full-time opportunities.

SKILLS

Programming: C, C++, Python, Java, SQL, HTML, CSS, Fireflink, Selenium

Embedded & IoT Systems: Arduino IDE, FreeRTOS, MATLAB, BLE, Wi-Fi (HTTPS, TLS, NTP, RTC, JSON), MQTT, REST APIs, ARM Cortex-M, UART, I2C, SPI, CAN, PLCs

Network & Security: OMNeT++, Wireshark, Network Security, Infrastructure Security, IDS/IPS, SIEM Tools, Threat Detection, TCP/IP, DNS

Tools & Environments: LTSpice, Ubuntu, VirtualBox, Chipyard, LLVM, FlexRIC, O-RAN, 5G/6G Systems

EDUCATION

Master of Science, Computer Engineering

Virginia Tech · Blacksburg, Virginia · Jan 2024 - Present · 4.0/4.0

• Coursework: Network Architecture and Protocols I, Computer Architecture, SS: 5G Advanced, ORAN and 6G, (Advanced) Real-Time Systems, Cellular communications, Network Architecture and Protocols II, Semiconductor devices, Compiler Optimizations, IoT Systems.

Bachelor of Technology, Electronics and Communication Engineering

Jawaharlal Nehru Technological University Anantapur · Anantapur, India · Aug 2019 - Apr 2023 · 9.87 / 10.0

EXPERIENCE

Graduate Teaching Assistant & Grader

Virginia Tech, ECE Dept

September 2024 - Present, Virginia, USA

• Physical electronics, Continuous and Discrete Systems, Semiconductor Devices.

Test Engineer Intern

Test Yantra

March 2023 - June 2023, Bengaluru, India

• Automated web and mobile app testing using Fireflink and Selenium, identifying bugs and reducing manual effort.

Java Full Stack Developer Intern

Q-Spiders

April 2022 - May 2022, Bengaluru, India

• Developed backend solutions and responsive web pages using Java, HTML, CSS, optimized performance with data structures and algorithms.

PROJECT

Wio Terminal - Integrated IoT System (Wi-Fi, BLE, HTTPS, NTP)

• Developed an IoT-based system integrating Wi-Fi, BLE, and HTTPS communication for real-time time synchronization, weather retrieval, and sensor data display.

• Implemented NTP-based RTC updates, HTTPS API requests, and BLE temperature-humidity services with data transfer and error handling.

5G xApp for Dynamic PRB Allocation

• Developed an xApp in FlexRIC for PRB adjustments based on CQI measurements to optimize network efficiency. Simulated CQI based PRB adjustments for functionality validation.

Real-Time Scheduling Analysis

• Implemented RM, DM, and EDF scheduling algorithms in FreeRTOS to compare CPU utilization and deadline misses; simulated performance in Arduino IDE for real-time assessment.

Application Specific Reconfiguration of RISC-V BOOM Core

• Optimizing RISC-V BOOM core configurations for applications like machine learning, data encryption, and graph traversal.

• Evaluating impact on performance metrics such as CPI and cache hit rate through modification of parameters including cache size, pipeline complexity, and branch prediction.

Lazy Code Motion (LCM) in LLVM

• Developed an LLVM optimization pass to reduce redundant computations by strategically placing expressions using advanced dataflow analyses.

Green and Sustainable 6G Wireless Systems

- Did a survey on eco-friendly 6G strategies by focusing on energy efficiency, green network architecture, and AI driven optimizations to reduce emissions.

Path Planning & Power Management for Solar UGV

- Designed an optimized path planning and power management system for a solar powered UGV.
- Used a modified PSO technique to minimize travel time across areas with variable solar energy.

Automatic License Plate Recognition System

- Developed using OpenCV and image processing, and achieved 95% accuracy in vehicle identification for security control.

CERTIFICATIONS

Network Security - Google

ARMv8-M Architecture Fundamentals, Introduction to Microprocessors - ARM

Industry 4.0 & IIoT - NPTEL

AWS IoT Learning Plan - Amazon Web Services

Verilog HDL fundamentals for digital design and verification - Udemy

Basics in PLC - Siemens (APSSDC)

Introduction to Programming Using Python - Microsoft

AWARDS & HONORS

Best electronics and communications engineering student-2023

State level award by ISTE, Issued by Sri Venkateswara College of Engineering, Tirupati • Oct 2024

Gold Medallist

Awarded by Nambi Narayanan (Aerospace Scientist) for achieving the 1st Rank with the highest percentage among UG students • April 2023

PUBLICATIONS

An integrated approach of path planning with Power management for a solar-powered UGV

AICTE Sponsored National Level Conference on Innovation and Information Communication Technologies (NCICT-2023) • March 9-11, 2023
