KAMAL BURA

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PROFESSIONAL SUMMARY

Results-driven Computer Science Engineer with proven expertise in AI/ML, IoT, and cybersecurity. Experienced in developing and deploying advanced solutions including pre- and post-quantum encryption, drone systems, and computer vision for crowd detection. Holder of multiple CCNA certifications, with a strong record of leading projects and delivering impactful results. Seeking a full-time role to leverage technical and leadership skills in a challenging environment.

EDUCATION

Bachelor of Engineering - Computer Science & Engineering (AI/ML)
Vasavi College of Engineering, Hyderabad ***Expected: 2026***

Relevant Coursework: Data Structures & Algorithms, Computer Networks, Operating Systems, Database Management, Machine Learning, IoT Systems, Cloud Computing, Artificial Intelligence

EXPERIENCE

Research Intern – IoT & AI/ML **June 2025 - Present**
International Institute of Information Technology Hyderabad (IIITH), Hyderabad

- Conducting research and development in the domain of IoT and AI/ML as part of the IOPT group at IIIT Hyderabad.
- Developed and deployed smart IoT systems with sensor integration, microcontroller programming, and cloud-based analytics.
- Led research and implementation of pre- and post-quantum encryption algorithms for secure IoT and drone communications.
- Designed and tested drone-based solutions for real-time data collection and autonomous navigation.
- Collaborated on computer vision projects, including crowd detection using ResNet50 fine-tuning for high-accuracy surveillance.
- Mentored junior engineers and contributed to technical workshops on AI, IoT, and cybersecurity.

TECHNICAL SKILLS

Programming: Python, Java, C++, C, JavaScript, HTML

AI/ML: TensorFlow, Scikit-learn, Keras, OpenCV, LSTM, NLP, ResNet50

Networking/Security: CCNA, Quantum Cryptography, Cybersecurity, IoT Security

Web Dev: React.js, Node.js, Express.js, MongoDB, Flask

IoT/Embedded: ESP32, ESP8266, Raspberry Pi, MQTT, Edge Computing, Drones

Cloud/DevOps: Azure, Docker, Git, Cloud Architecture

Tools: Git, Docker, VS Code, Jupyter, Kaggle

PROJECTS

Pre- and Post-Quantum Encryption for IoT & Drones

- Implemented hybrid cryptographic protocols to secure IoT and drone communications against quantum threats.
- Benchmarked performance and security of lattice-based and classical algorithms in real-world deployments.

Technologies: Python, ESP32, Quantum-safe libraries

Crowd Detection with ResNet50

- Fine-tuned ResNet50 for real-time crowd detection and density estimation in surveillance video streams.
- Achieved high accuracy and low latency for smart city and event management applications.

Technologies: Python, TensorFlow, OpenCV, ResNet50

IoT-Based Text-to-Speech System

- Engineered real-time voice conversion system using ESP32 and Azure cloud, enabling secure, scalable speech services. [GitHub]

Technologies: ESP32, Microsoft Azure, IoT protocols

Smart Traffic Management System

- Developed intelligent traffic signal control using IoT sensors and real-time analytics, reducing congestion by 20%. [GitHub]

Technologies: IoT sensors, Network protocols, Real-time systems

AI-Powered Face Recognition System

- Built robust face detection/recognition with OpenCV/Dlib, achieving 95% accuracy for security use-cases. [GitHub]

Technologies: OpenCV, Dlib, Python, Computer Vision

Stock Price Prediction Model

- Implemented LSTM neural network for S&P 500 forecasting, delivering actionable trading insights. [GitHub]

Technologies: LSTM, TensorFlow, Python, Data Analytics

ADDITIONAL PROJECTS

Smart Home Automation Platform

- Created web-controlled ESP8266 system with MQTT protocol for device communication
- Developed responsive web interface for remote home appliance control

Technologies: ESP8266, MQTT, Web development, IoT networking

Conversational AI Chatbot

- Developed intelligent chatbot using TensorFlow and Flask with natural language processing
- Integrated multiple domains for customer service and information retrieval

Technologies: TensorFlow, Flask, NLP, Python

CERTIFICATIONS

Cisco CCNA Certifications (2023-2025):

- **CCNA: Introduction to Networks** - Advanced networking fundamentals
- **CCNA: Switching, Routing, and Wireless Essentials** - Intermediate networking, switching, routing, wireless
- **CCNA: Enterprise Networking, Security, and Automation** - Enterprise-level networking, security, automation
- **Introduction to Cybersecurity** - Security principles and threat analysis
- **Introduction to IoT** - IoT architecture and implementation

Additional Certifications:

- **Networking Basics** - Core networking concepts and protocols
- **Python Essentials 1 & 2** - Advanced Python programming
- **The Joy of Computing Using Python** - NPTEL (2023)
- **Python for Data Science** - NPTEL Elite + Silver Medal (77/100)

ACHIEVEMENTS

- **2nd Place** - Code and Cognition 2K23 ML Challenge (Team TechBlazers), Jan 2023. Kaggle-based ML competition, 70+ teams.
- **Top 10 Finalist** - University Coding Hackathon (2022)

LEADERSHIP & ACTIVITIES

Active Member - AI/ML Club, Vasavi College of Engineering

- Mentored junior students in AI/ML and led Kaggle competition teams.

Workshop Speaker - AI & IoT Training

- Conducted workshops on AI and IoT, training 50+ students in emerging tech.

Team Lead - TechBlazers (Competitive Programming Team)

- Led cross-functional teams in hackathons and ML competitions, achieving consistent top-10 finishes.