

# KARAN VASUDEVAMURTHY

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## Education

### The University of Texas at Arlington

*Master of Science in Computer Science*

Aug 2023 – May 2025

Arlington, Texas

### Dayananda Sagar College of Engineering

*Bachelor of Engineering in Computer Science and Engineering*

Aug 2019 – May 2023

Bangalore, India

## Experience

### The University of Texas at Arlington

*Information Security Lab Instructor / GTA*

Aug 2024 – May 2025

Arlington, Texas

- Modernized lab functionalities and ensured seamless operational continuity by rewriting legacy scripts for a newly rebuilt lab system, creating an updated and efficient learning environment.
- Enhanced student understanding and engagement for **50+ students per semester** in Information Security concepts, including encryption, Linux access management, setuid programs in C, and buffer overflow attacks, improving lab comprehension and practical skill application.
- Elevated students' practical understanding of real-world security threats by orchestrating and hosting Capture The Flag (CTF) competitions and hands-on security exercises, resulting in greater student preparedness for cybersecurity challenges.
- Earned recognition as **one of the best TAs of the semester** through exceptional teaching, dedicated student support, and commitment to enhancing the learning experience, positively impacting students in the cybersecurity lab.

### The WAW Podcast

*Web Developer*

Feb 2025 – Mar 2025

Freelance Project

- Dramatically increased audience reach, user engagement, and discoverability by designing, developing, and launching a fully responsive website for the podcast **within three weeks**, significantly expanding listener access and interaction.
- Enabled real-time website updates and simplified content management by implementing automated deployment via Git integration, ensuring immediate reflection of code repository changes on the live site.
- Provided podcast hosts with enhanced content strategy and engagement insights by integrating Google Analytics, allowing them to monitor detailed user statistics such as visitor counts and session durations.

### Visteon Corporation

*Software Engineering Intern — Computer Vision*

Sept 2021 — Mar 2025

Bangalore, India

- Improved real-time driver assistance system **accuracy by 25%** by optimizing facial landmarking algorithms and reducing noise via MediaPipe filtering, validated using behavior test suites on Mahindra platforms
- Reduced edge detection **latency by 40%** by shifting processing from cloud to on-device OpenCV inference on Android, enabling frame rates to meet real-time Driver Monitoring System threshold
- Contributed to surround view photometric alignment and Alexa integration for Mahindra XUV700, helping it achieve **77% market share** in the mid-size SUV segment, validated through internal UX studies and customer feedback

## Projects

### Tune Tracer | C#, .NET

Apr 2025 – Current

- Built a Shazam-like music recognition system using spectrogram peak hashing to generate unique audio fingerprints, which were stored in a custom graph-based database for fast lookup and recognition across noisy or altered audio samples.
- On successful match, fetched metadata (title, artist, album, and popularity) from the Spotify API to enrich results; verified accuracy by comparing hash match offsets and confirming metadata alignment across studio, live, and remixed versions.

### LocalGPT | Python, LangChain

Oct 2023 – Feb 2024

- Engineered a private chatbot by deploying Nous-Hermes-13B-GGML locally, **ensuring privacy** for sensitive conversations in academic and internal use cases
- Demonstrated **100% independence from remote APIs**, reducing cost and privacy risks.

### Fake News Detection | Python, NLP

Jan 2023-Apr 2023

- Improved false news detection F1 score by 12% over baseline models by **pioneering India's first government-verified news dataset**, created through web scraping the official Press Information Bureau site and leveraging BERT embeddings combined with cosine similarity to assess tweet reliability
- Developed a Telegram chatbot capable of real-time sentiment analysis, political bias detection, and credibility scoring, demonstrating a practical application of NLP techniques to improve news trustworthiness.

## Technical Skills

**Programming Languages:** Go, Python, C++, C#, SQL, HTML/CSS, JavaScript

**Frameworks & Libraries:** React, Jest, Angular, Flask, .NET, TensorFlow, OpenCV, Dlib, MediaPipe, LangChain

**Developer Tools & DevOps:** VS Code, Android Studio, Docker, Firebase, Postman, Git, GitHub Actions

**Cloud Services & OS:** AWS, Linux, SQLite

**Security Tools & Frameworks:** Metasploit Framework, Wireshark, Nmap, Hashcat, Autopsy