Karan Vasudevamurthy

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Education

The University of Texas at Arlington　　　　　　　　　　　　　　　**Aug 2023 – May 2025**
Master of Science in Computer Science　　　　　　　　　　　　　　　*Arlington, Texas*

Dayananda Sagar College of Engineering　　　　　　　　　　　　　**Aug 2019 – May 2023**
Bachelor of Engineering in Computer Science and Engineering　　　　　*Bangalore, India*

Experience

The University of Texas at Arlington　　　　　　　　　　　　　　　**Aug 2024 – May 2025**
Information Security Lab Instructor / GTA　　　　　　　　　　　　　*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　　　　　　　　　　　　　　　　　　　　　　**Feb 2025 – Mar 2025**
Web Developer　　　　　　　　　　　　　　　　　　　　　　　　*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　　　　　　　　　　　　　　　　　　　　　　**Sept 2021 — Mar 2022**
Software Engineering Intern — Computer Vision　　　　　　　　　　　*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