

V V S AAKASH KOTHA

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EDUCATION

University of California, Davis **Expected Dec 2025**
Master of Science in Computer Science **CGPA: 3.94/4**
Relevant Coursework: Data Structures and Algorithms, Machine Learning, Software Engineering, Data Mining, Distributed Databases
Vellore Institute of Technology, India **Jun 2019 - May 2023**
Bachelor of Technology in Computer Science & Engineering | Department Rank: '5th' out of 2100 **CGPA: 3.86/4**

SKILLS

Languages: Python, Java, C++, R, MATLAB, SQL, HTML, CSS, JavaScript, PHP, OOP, Processing
Frameworks/Libraries: TensorFlow, Keras, Scikit-learn, React, Numpy, Pandas, PyTorch, OpenCV, YOLO, Matplotlib, NLTK
Technologies: MySQL, Selenium, XPath, PyDriller, Tableau, Git, Excel, 3D Reconstruction 🚫
Concepts: Deep Learning, Computer Vision, CNN, Data Science, NLP, LLM, Exploratory Data Analysis, Hypothesis Testing

EXPERIENCE

Data Scientist Intern **Jul 2024 - Present**
Wang Lab *Davis, CA*

- **Accelerated model fit time by 70%** using **OpenMP** for parallel processing in MATLAB scripts interfacing with MEX files, significantly improving the efficiency of large-scale Time Activity Curve (TAC) analysis across compartmental models.
- **Enhanced kinetic modeling performance by 50%** through optimizing MATLAB workflows, **developing wrapper functions** to streamline operations, improve computational efficiency, and support processing of large datasets effectively.

Machine Learning Research Intern **Apr 2024 - Jul 2024**
Pmlab *Davis, CA*

- Contributed to the development of **black-box attack** using a **vanilla GAN** architecture, exposing critical vulnerabilities within SOTA deep clustering models, resulting in a **significant 25% performance decline** across diverse datasets.
- Analyzed the black-box attack thoroughly, revealing its ability to **bypass established model defenses** like Deep Learning Based Anomaly Detection (DLBAD), **detected only 15% of the adversarial samples** generated by the attack.
- Engineered optimization strategies to **reduce query complexity to less than 4,000** targeted queries per model. Leveraged this expertise to enhance the resilience of video fair summarization models through advanced **diffusion model** integration.

Teaching Assistant **Oct 2023 - Present**
UC Davis (Algorithm Design & Analysis; Coding for Designers; 3D Design; Speculative Design) *Davis, CA*

- Facilitated dynamic and interactive learning for **180+** students by leading engaging discussions and conducting intensive live debugging sessions, including stay-late-and-code sessions, effectively enhancing their coding proficiency, and debugging expertise.
- Crafted complex and innovative assignments that significantly **boosted student performance by 20%**, offered one-on-one assistance during office hours, and collaborated with faculty to enhance the curriculum, leading to a **30% increase** in student engagement.

Software Development Intern **Jun 2021 - Sep 2021**
Pie Infocomm *Remote*

- Led the **full-stack development** of a Covid-19 assistance website, enabling real-time data exchange with the Microsoft Healthcare Bot service with a response time of **under 1.5 secs**, and integrated Azure Web App services to display latest Covid-19 stats.
- Implemented a **Twitter API aggregation** feature to pull relevant tweets based on geolocation and service type, helping users locate nearby Covid relief services, earning recognition in **Microsoft Future Ready Talent's Hall of Fame-2022** 🚫.

PROJECTS

The NPM Dilemma 🚫 | *Python, PyDriller, Synk API* **Mar 2024**

- Optimized the extraction process to achieve a **12x speedup**, retrieving metadata from package.json via the NPM Registry API & Git stats from PyDriller for **70k packages**, leveraging **batch processing & data pipelines** to enhance performance.
- Established a classification framework leveraging code & activity metrics, applying statistical tests (MWU, chi-square) to uncover crucial predictors for vulnerability metrics, empowering developers with actionable security insights.

DriveSafe360: Intelligent 360-degree Safety for Smart Cars | *Python, IoT, YOLOv8, cvzone, ThingSpeak* **May 2023**

- Developed a comprehensive car safety system featuring drowsiness detection (**YOLOv8, cvzone, dlib** ensemble), alcohol detection with IoT integration, and speed limit detection utilizing Google Maps **Roads API & sensor fusion** for real-time decision-making.
- Leveraged DL & IoT to achieve exceptional accuracies of **98.50%** and **97.33%** for driver fatigue and alcohol detection.

PUBLICATIONS

IEEE Conference - The 14th ICCNT by IIT - Delhi 🚫 **Aug 2023**
- A Novel Framework for Qr Detection & Decoding from Obscure Images using Yolo & Real-esrgan Image Enhancement

International Research Journal of Engineering and Technology (IRJET) 🚫 **Aug 2021**
- A New Proposal of Smart Time Quantum for Round Robin Algorithm and Comparison with Existing Round Robin Variants.

AWARDS AND ACHIEVEMENTS

- Awarded with "**Achiever 2021-22 Certificate**" 🚫 based on my performance at various National events representing VIT.
- Received the "**Merit Scholarship**" 🚫 from VIT for achieving a position among the top 10 rank holders in my major in UG.
- AWS Artificial Intelligence (AI) and Machine Learning (ML) Program Scholarship Recipient.