Kavya Chandrika Vempalli
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EDUCATION

Master's in Computer Science **Aug 2023-May 2025**
Arizona State University, Tempe, AZ **Grade: 3.77/4.0**
Relevant Courses: Data processing at scale, Artificial Intelligence, Statistical Machine Learning, Software Verification Validation and Testing, Mobile Computing, Introduction to Human Computer Interaction

Bachelor's in Computer Science and Engineering **Aug 2016-Oct 2020**
Osmania University, Hyderabad, India **Grade: 8.13/10.0**
Relevant Courses: Java, Database Management Systems, Data Structures and Algorithms, Web Development

SKILLS

Programming Languages: C, C + + , C#, Java, Python, Kotlin, HTML, CSS, YAML
Web Frameworks and Databases: SQL, PostgreSQL, JavaScript, React JS, JSON, Node JS, Spring Boot, Spring MVC, TypeScript
Technical Skills: Linux, Git, GitHub, Gitlab, Bitbucket, Figma, CI/CD, Agile Methodologies, Rest API, Junit, Mockito, Maven, AWS, Docker, Kubernetes, Webservices, Jenkins, JIRA, Confluence, Hadoop, Spark
Python libraries: NumPy, Scikit-learn, Pandas, Matplotlib, PyTorch, TensorFlow, OpenCV, Django, Pytest, FastAPI, Flask

CERTIFICATIONS

- **AWS CERTIFIED – DEVELOPER ASSOCIATE**

WORK EXPERIENCE

Software Engineer Intern, EyCrowd Inc **July 2025 - Present**

- Conducted comprehensive app testing to identify and resolve bugs, enhancing overall application stability and performance.
- Integrated social media APIs using React Native to enable seamless account linking and social sign-in functionality.
- Developed friend management module including sending requests, accepting/rejecting requests, and maintaining real-time friend lists.
- Implemented in-app photo and video capture using native device camera APIs, resolving performance and storage issues.

Graduate Software Engineer, Arizona State University **Aug 2024 – May 2025**

- Built reusable React & TypeScript proprietary UI components, cutting content creation time by over 50%.
- Reviewed 30+ GitHub PRs and resolved 10+ critical production bugs, including high-severity crashes, improving app stability.
- Deployed application services on AWS (EC2, S3, Cognito) and containerized codebase using Docker for better scalability.
- Implemented leave management modules (leave application, workflow, and policy) using React + TypeScript (frontend) and Spring Boot + MariaDB (backend) for a client, ensuring compliance with HR policies and improving process automation.
- Developed financial calendar and attendance entry systems integrated with backend APIs, enabling accurate payroll processing and reducing manual errors in time-tracking.
- Implemented overtime management workflows (logging, requests, approvals) with React UI forms and Spring Boot services, streamlining approval chains and cutting approval turnaround time.

Research Engineer, Hyundai Mobis, Hyderabad, India **Feb 2021 – Jul 2023**

- Built real-time chat application using Spring Boot, WebSocket, Redis for pub/sub, solving unreliable message delivery, and cutting message latency to sub-200 ms across regions.
- Implemented volatile messaging feature with TTL policies at DB and cache layers (SQL + Redis), reducing data retention risk and meeting internal compliance requirements.
- Developed secure file transfers via multipart eliminating timeout failures and improving large-file success rates to 99%+.
- Worked on containerization of backend services using **Docker**, creating lightweight and consistent application environments. This initiative reduced deployment conflicts and streamlined the development-to-production workflow by over 30%.
- Developed high-performance, scalable microservices using **Spring Boot** to power next-generation In-Vehicle Infotainment (IVI) systems, delivering core functionalities like real-time navigation, media streaming, and vehicle diagnostics.
- Acted as configuration control manager ensuring code versioning, deployment consistency, and continuous delivery through Git CI/CD, maintaining high-quality standards across development cycles.
- Successfully implemented service discovery and dynamic configuration for microservices within the IVI ecosystem, enabling seamless communication and on-the-fly updates without system downtime.
- Collaborated with cross-functional teams to define APIs and integrate backend services with the vehicle's head unit, contributing to a fluid and responsive user experience for the driver.
- Built Python-based scripts to monitor system health, detect deadlocks, and automate debugging processes, reducing manual interventions by 40%.
- Applied Agile practices, including sprint planning, daily standups, and retrospectives, for continuous product improvement and rapid delivery.

Web development Intern, Quanint Tech Soft, PVT LTD, Hyderabad, India **Jun 2019 – Jul 2019**

- Developed Fusion Duniya website utilizing HTML, CSS, JavaScript, Bootstrap and React JS, achieving a 25% increase in user engagement and improving page load time by 30%. Consistently met customer requirements, optimizing user experience for over 1,000 monthly visitors.
- Implemented a front-end website on the WordPress platform, creating tailored solutions that enhanced client satisfaction by 20% through a user-friendly and visually appealing interface.

PROJECTS

Agriculture Pest Classification using Convolutional Neural Networks **May 2024**

- Developed a CNN model using ConvNeXt architecture, achieving 95% accuracy in classifying 12 pest classes, significantly outperforming baseline models. Curated and augmented a dataset with 4395 training samples and 1099 testing samples, employing techniques like rotation, flipping, and scaling using python libraries numpy, pandas and Pytorch to improve model robustness
- Implemented advanced image annotation and localization techniques, enhancing the model's ability to accurately identify and delineate pests in agricultural settings. Utilized PyTorch and MakeSense AI for model development and data annotation, ensuring high-quality, annotated datasets and efficient training processes. Conducted rigorous model evaluation using ROC curves and confusion matrices, ensuring precise and reliable pest classification performance.

Advanced Sentiment Analysis and Review Summarization for Movies **Dec 2024**

- Developed supervised models for sentiment analysis and review summarization, achieving 96.68% accuracy and a ROUGE-1 score of 0.583, exceeding benchmarks.
- Optimized sentiment analysis workflows by employing **MPNet** for advanced feature extraction and comparison with other classifiers, resulting in the highest model accuracy of 96.68%, outperforming traditional methods by 7.4%. Fine-tuned a **T5-base model** on a custom dataset of 1,000 summaries, delivering cohesive abstractive summaries with top ROUGE scores and strong manual evaluations.

Fast Traffic Accident Hotspot Prediction using Federated Learning on Graph Neural Networks **Dec 2024**

- Developed a deep learning model using **Federated Learning** and **Graph Neural Network (GNN)** to predict traffic accident hotspots with an F1 score of 0.92 and AUC-ROC of 0.95 across 12 U.S. cities using **PyTorch** and **Scikit-learn**.
- Implemented Federated Learning with GNNs for decentralized training, ensuring data privacy and achieving 94% accuracy and 0.92 F1 score. Optimized model performance with advanced padding techniques and hyperparameter tuning, improving accuracy by 6% and ensuring consistent convergence.

Face recognition using AWS **May 2024**

- Designed and deployed **AWS IaaS** and **PaaS** architectures using **EC2**, **SQS**, and **S3** to implement a **Flask**-based face detection system, achieving 100% accuracy on image datasets.
- Executed face detection from videos by integrating **AWS S3, ECR, and Lambda**, delivering scalable and efficient processing workflows.

Concept Learning **Dec 2023**

- Integrated **CLIP** and **Kandinsky** models using **Python**, **TensorFlow**, and **Transformer** architectures to dynamically modify images based on textual descriptions, achieving a 95% accuracy in semantic alignment between text prompts and generated visuals.
- Applied advanced machine learning techniques to merge language understanding and image manipulation, resulting in a 40% improvement in processing speed and enabling seamless concept conjunction with minimal errors (<5%).

Actor-Critic and REINFORCE Reinforcement learning algorithm implementation in Pacman Domain

- Developed and tested Actor-Critic and REINFORCE reinforcement learning algorithms for optimizing performance in the Pac-Man game environment. Through a comprehensive comparison, found that Actor-Critic surpassed REINFORCE in learning speed and efficiency, particularly with fewer training episodes.
- Communicated my findings with detailed analysis and visualizations, highlighting each algorithm's strengths and their applicability in diverse environments. Contributed to the technical and analytical aspects of designing, implementing, and evaluating these reinforcement learning models

Westside Website Revamp Project (Human-Computer Interaction Project) **Dec 2023**

- Developed usability tasks for users to evaluate the updated website, analyzing post-task and post-session metrics to measure enhancements. Conducted cognitive walkthroughs and heuristic evaluations to assess usability and propose enhancements for the website.
- Utilized Axure to modify specific pages on the Westside website as part of a Human-Computer Interaction project. Significantly improved usability metrics, notably task time and completion rates. Used the extracted data to perform the feature selection process to get the reports of the patients having similar issues, the feature selection methods have retrieved the results with accuracy of 98%.

Guardian Angel (Mobile Computing Project) **Dec 2023**

- Implemented an autonomous advisory controller in MATLAB/Simulink for enhancing travel safety in users by processing real-time physiological and vehicular data.
- Established real-time data input via ThingSpeak channels with six fields (Heart Rate, Resp Rate, Speed, Distance, Road Condition, Collision Status), simulating realistic driving scenarios for emergency and decision analysis.
- Implemented data processing in mobile application using Java in Android.