Sai Harshavardhan Reddy Kona

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Software Engineer | Full Stack Web Developer

Software Engineer with around 4 years of experience, specializing in developing scalable web apps and building responsible AI models into production environments. Skilled in designing robust software apps, with a strong foundation in API design and UI integration, coupled with modeling and training ML systems. Committed to leveraging AI to solve problems by seamlessly integrating AI into web.

EDUCATION

Master of Science in Computer Science | University of Massachusetts (GPA – 3.8/4.0)   **May 2023 | Boston, MA, USA**
Bachelor of Technology in Electronics & Communication | SASTRA Deemed University   **July 2020 | Thanjavur, TN, India**

PROFESSIONAL EXPERIENCE

Software Engineer | Innovise Technology Inc.   **Aug 2023 – Present | Boston, MA, USA**
Stack: JavaScript, React.js, Next.js, Node.js, Express, Tailwind CSS, PostgreSQL, MongoDB, GitHub, JWT, Amazon Web Services (AWS)
- Reduced document handling time by 87.5% by developing a scalable centralized document management system (DMS), automating workflows and enabling faster document access and approvals.
- Improved document storage flexibility by implementing a hybrid database architecture for structured data, such as user profiles and roles, and unstructured data like project reports and documents, enabling scalable and secure document access.
- Increased document retrieval speed by 47.5% by implementing advanced B-Tree indexing in PostgreSQL and MongoDB, optimizing search performance for complex queries and improving data access efficiency.
- Enhanced user experience and accessibility by leveraging REST APIs with Server-side Rendering (SSR) for user management, document upload, retrieval, and developing a responsive UI dashboard for intuitive and efficient document handling.
- Strengthened system security by implementing JWT tokens for secure user authentication and authorization, and establishing granular access control mechanisms to ensure appropriate document access based on user roles.

Machine Learning Engineer | University of Massachusetts   **Jan 2023 – May 2023 | Boston, MA, USA**
Stack: Python, PyTorch, Pandas, 1D CNN, BERT Sentence Transformers, NLP, SpaCy, NLTK, Anaconda
- Developed VPASS by implementing a privacy-focused voice command analysis framework, resulting in significant reduction of sensitive information leakage to Amazon Alexa and similar devices, enabling privacy protection for voice assistant users.
- Engineered a hybrid machine learning architecture by combining 1D CNN with BERT Sentence Transformers, achieving 93% accuracy in sensitive information detection and creating a reliable privacy risk assessment system for voice commands.
- Led data preparation and labeling initiatives by coordinating with 5 researchers to manually score 15,000 voice commands, creating a robust labeled dataset that formed the foundation for machine learning model training and validation.
- Enhanced privacy risk detection by implementing advanced NLP techniques for feature extraction and sentence-level understanding, resulting in improved accuracy in identifying and classifying sensitive voice commands across privacy risk levels.
- Engineered a 5-tier sensitivity ranking system through integration of NLP techniques with sentence transformers, enabling granular privacy risk assessment and improving user privacy awareness.

Software Engineer (Intern) | University of Massachusetts   **Sep 2022 – Dec 2022 | Boston, MA, USA**
Stack: Python, PyTorch, Keras, NumPy, CUDA, Mahotas, MVC Design Pattern, GitHub, Anaconda, PyPi
- Led a 4-member development team in creating a speech engine prototype by integrating Python, Raspberry Pi with custom hardware sensors, resulting in a multi-sensory communication system that improved accessibility by 40% for autistic individuals.
- Engineered a tri-sensory pattern language system by developing real-time conversion algorithms that transform speech into synchronized tactile, audio, and visual patterns, enhancing communication capabilities through multiple sensory channels.
- Developed a desktop GUI application using TkInter and JSON-based stenography mapping that converts speaker notes into 3 different sensor inputs, resulting in a 25% increase in communication efficiency for users with autism.
- Architected a scalable communication framework by integrating hardware sensors with custom Python modules on Raspberry Pi, enabling real-time processing and synchronization of multi-sensory feedback patterns.

Software Engineer | Cognizant Technology Solutions (CTS)   **Aug 2020 – Dec 2021 | Hyderabad, TS, India**
Stack: Python, Pandas, TkInter, Simulink, MATLAB, NumPy, CUDA, Git, GitHub, Jira, Agile Methodology, SCRUM, Pyenv
- Reduced testing time by 66% across two release cycles by developing an automated testing tool using Python and TkInter, streamlining the testing of Simulink-based vehicle feature models for Lordstown Motors LLC.
- Optimized testing efficiency by implementing a solution to bypass the Simulink GUI, directly interfacing with the model backends, reducing test execution time from hours to minutes and minimizing resource usage.
- Saved over 100 hours of manual testing effort by automating test scripts for HIL, MIL, and SIL environments, enabling faster validation of key vehicle functionalities such as Powertrain, PRND gearbox, and Lane Departure Warning.
- Collaboration with validation engineers to align automating testing processes with real-world requirements, enhancing test case accuracy and ensuring seamless integration between the testing tool and Simulink models.

Software Engineer (Intern) | TATA Consultancy Services (TCS)   **May 2019 – Jul 2019 | Boston, MA, USA**
Stack: Python, NumPy, Pandas, Raspberry Pi, JSON, Robot Operating System (ROS 2), LiDAR, Camera Sensor
- Led development of a fully functional autonomous indoor vehicle within 3 months, reducing the development time by 50%, utilizing industry standards and readily available hardware.
- Achieved 88% real-time obstacle avoidance success rate and 72% increased mapping efficiency using LiDAR and camera fusion.
- Completed 85 successful autonomous navigation runs out of 100, demonstrating strong performance and prototype stability.