Akhilraaj M

Technical Specialist – Software Engineer
Continental Automotive

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CAREER OBJECTIVE

Engineer with experience in software development, calibration analysis, and system validation. Proven ability to design, debug and optimize performance-critical systems. Driven by curiosity and a passion for innovation, I strive to apply technical depth and creative thinking to solve complex real-world challenges.

SUMMARY

- 7 years of experience in the IT industry specializing in Online Camera Calibration for ADAS and Autonomous Mobility systems, image processing, web development, automation, and IoT solutions
- Proven ability to develop, optimize, and integrate complex algorithms and tools using C++, Python, and various cloud technologies
- Hands on experience in Python, C++, MATLAB, HTML, CSS, Flask, WordPress, Docker, Kubernetes, Ubuntu/Linux, Adobe Photoshop, Selenium, Pytest, Robot Framework, BlazeMeter, JMeter, SQL, GraphQL, Mocha JS, Agile methodologies, SSDLC
- Hackathon enthusiast with a strong passion for ML, winning multiple awards for solutions in lowlight enhancement, autonomous simulations, and predictive maintenance. Proven ability to apply AI/ML in real-world automotive and industrial scenarios
- Collaborated with a team of developers, architects and product managers to deliver software solutions meeting client requirements within deadlines

EXPERIENCE:

- Presently working as Technical Specialist at **Continental Automotive**, Bangalore since October 2022
- Served as Software Engineer at **Magik Eye**, Bangalore from June 2020 to October 2022
- Functioned as Test Engineer at **Infosys**, Bangalore from September 2018 to June 2020
- Engaged as Systems Engineer Trainee at **Infosys**, Mysore from May 2018 to September 2018
- Completed Internship at **Zazen Systems**, IIT Madras from February 2018 to May 2018

ACHIEVEMENTS:

- Recognized with the **Spot Award** twice at Continental for outstanding contributions
- Awarded as **The Rockstar Rookie** by Infosys Validation Services
- Honored as **The Best Outgoing Student** of the year 2018 by Dr.MCET
- Received **Innovative Project Award** from iBevey Forte Pvt Ltd

EDUCATION:

- **Bachelor of Engineering (Electronics and Instrumentation)**
  Dr. Mahalingam College of Engineering and Technology – 2018
  Percentage: 87.38%
- **Higher Secondary Certificate (HSC)**
  PKD Matriculation Higher Secondary School – 2014
  Percentage: 92.30%
- **Secondary School Leaving Certificate (SSLC)**
  Viswadeepthi Matriculation Higher Secondary School – 2012
  Percentage: 90.20%

CERTIFICATIONS:

- Introduction to Generative AI Learning Path – Google Cloud Skills Boost
- Introduction to Machine Learning – Duke University
- Docker Course for Beginners – Udemy
- Python for Data Science – IBM
- Interfacing with Arduino – University of California
- Architecting with Google Kubernetes Engine Foundations – Google Cloud Skills Boost
- Setup & Configure Cloud Environment – Google Cloud Skills Boost

SKILLS:

- **Programming Languages**: Python, C++, C, MATLAB, Java
- **Web Development**: HTML, CSS, Flask, WordPress
- **Frameworks & Testing Tools**: Selenium, Pytest, Robot Framework, Appium, Mocha JS
- **Cloud & DevOps**: Docker, Kubernetes, AWS, Google Cloud
- **Tools & IDEs**: CARLA, Pycharm, Jupyter, Anaconda, VS Code, Visual Studio, CMake
- **Databases & Query Languages**: SQL, GraphQL
- **Operating Systems**: Ubuntu, Windows, Mac
- **Automation & IoT**: OpenHAB2, BLE/MQTT, Raspberry Pi
- **Others**: Adobe Photoshop, Agile methodologies, SSDLC

PROJECT DETAILS:

Project #1

Title	:	Camera Calibration for Automotive Vehicles
Team Size	:	4
Tools/Environment	:	C++, Visual Studio, Ubuntu, Python, MATLAB
Period	:	October 2022 to present

Description:

Performing camera calibration for trucks and other vehicles to ensure precise alignment of camera systems, enabling accurate depth perception, object detection, and lane-keeping functionalities for advanced driver assistance systems (ADAS) and autonomous driving applications.

Responsibilities:

- Led Online Camera Calibration module development in C++, enhancing calibration accuracy using odometry
- Replaced standard functions with CML equivalents, boosting performance and maintainability
- Integrated distortion correction models for front cameras
- Used CARLA to simulate and validate calibration scenarios
- Developed MATLAB scripts for factory camera calibration
- Integrated the GECKO algorithm with CAN and Visual Odometry
- Resolved PolySpace findings, improved HPC performance, optimized codebase
- Mentor junior developers, assisting them with technical guidance
- Attending scrum calls with business system owners on daily basis to provide updates and discuss on sprint planning
- Providing functional and technical KT sessions for new resources in the team

Project #2

Title	:	Web Development and Testing
Team Size	:	1
Tools/Environment	:	HTML, CSS, AWS, Flask, Docker, Kubernetes, Pytest, Selenium, BlazeMeter, JMeter
Period	:	March 2022 to October 2022

Description:

Designed, developed, and rigorously tested a robust application, containerized it using Docker for consistency and scalability, and successfully deployed it on AWS Lightsail to ensure high availability and cost-effective cloud hosting.

Responsibilities:

- Developed company website using HTML/CSS and deployed via AWS Lightsail
- Built backend REST APIs using Flask, containerized with Docker, and deployed with Kubernetes
- Automated tests using Selenium, Pytest, BlazeMeter, and JMeter
- Attending Business meetings as required

Project #3

Title	:	Firmware and Calibration File Distribution Server
Team Size	:	3

Tools/Environment : Python, Django, MySQL, Docker, Kubernetes, Pytest, Selenium
Period : July 2021 to March 2022

Description:

Designed and implemented a centralized Firmware and Calibration File Distribution Server to streamline the secure delivery, version control, and deployment of firmware and calibration data across embedded devices/systems.

Responsibilities:

- Designed backend system for secure firmware and calibration file distribution
- Implemented version control and automated deployment workflows
- Integrated authentication, logging, and audit mechanisms for traceability

Project #4

Title : Firmware and Calibration File Distribution Server
Team Size : 2
Tools/Environment : Python, Perf
Period : December 2020 to July 2021

Description:

Developed a Python-based benchmarking tool for memory profiling and performance analysis, running on a C++ backend server to enable real-time monitoring, resource optimization, and performance tuning.

Responsibilities:

- Designed and implemented memory profiling modules using Python for detailed runtime analysis
- Analyzed performance metrics to identify bottlenecks and guide optimization efforts
- Performed latency experiments
- Report generation and analysis

Project #5

Title : Unity-Python based sensor-controlled game
Team Size : 2
Tools /Environment : Python, Unity, Oculus Quest
Period : June 2020 to December 2020

Description:

Developed a proof-of-concept (POC) tennis game controlled through hand gestures detected by a depth sensor camera, which captures both gesture patterns and player distance to enable interactive gameplay and real-time responsiveness without physical controllers.

Responsibilities:

- Built Unity-Python based sensor-controlled tennis game
- Developed interpolation logic for smooth motion tracking
- Integrated depth camera for gesture and distance input

Project #6

Title	:	Smart building IOT Test Automation
Team Size	:	3
Tools /Environment	:	GraphQL, MochaJS
Period	:	June 2019 to June 2020

Description:

Designed a Smart Office Automation system to streamline workplace operations, including automated meeting scheduling, dynamic employee car parking allotments, conference room bookings, and smart assistance integration. The system also featured intelligent lighting control (on/off) based on occupancy and scheduling data, enhancing energy efficiency and user convenience.

Responsibilities:

- Developed modules for automated meeting scheduling, parking allocation, and conference room booking
- Integrated smart assistance and occupancy-based lighting control for enhanced energy efficiency
- Automated API and GraphQL testing for Smart Building IoT applications using Mocha JS
- Collaborated with IoT systems to enable real-time device control and status monitoring

Project #7

Title	:	Smart Home POC
Team Size	:	1
Tools /Environment	:	Raspberry Pi, OpenHab2, BLE/MQTT protocols
Period	:	April 2019 to June 2019

Description:

Developed an IoT-based smart lighting system that allows users to control lights through a mobile application, with lights connected to a Raspberry Pi running an OpenHAB2 server. The system enabled seamless on/off control and automation of smart lights, leveraging OpenHAB2's home automation capabilities for real-time status monitoring, remote access, and rule-based automation.

Responsibilities:

- Tested mobile app controls for smart lighting via OpenHAB2
- Verified integration between Raspberry Pi, OpenHAB2, and IoT devices
- Automated functional and regression tests for light control features

Project #8

Title	:	Test automation for Website and mobile application
Team Size	:	4
Tools /Environment	:	Robot Framework, Python, Selenium, Appium
Period	:	September 2018 to April 2019

Description:

Automated functional testing for web and mobile applications using Selenium, Appium, and Robot Framework with a Keyword-Driven Testing Framework, enabling efficient, reusable, and maintainable test scripts for cross-platform quality assurance.

Responsibilities:

- Wrote and automated test cases using Selenium, Appium, and Robot Framework
- Developed and maintained keyword-driven test scripts
- Executed tests, analysed results, and logged defects
- Report generation

Systems Engineer Trainee

Period : May 2018 to September 2018

Description:

Attended a 5-month classroom training for Python, RDBMS, OOP, Java provided by Infosys, Mysore.

Accomplishments:

- Cleared Infosys Foundation Program Training.
- Developed a console-based application using Python, RDBMS, OOP as part of training.
- Designed and developed a dynamic web application using J2EE technologies, ensuring scalability and robust architecture. Deployed the application on Apache Tomcat and implemented RDBMS for reliable data management and persistence.

Intern

Period : February 2018 to May 2018

Accomplishments:

- Worked on smart IoT water cooler use case using STM32 Nucleo boards

Hackathon:

- **Winner – Lowlight Enhancement Hackathon:** Developed a machine learning algorithm to enhance lowlight images from automotive front cameras, improving object visibility and detection accuracy in nighttime driving conditions.
- **Runner-up – AWS Gen AI Hackathon:** Built an automated code generation system for Carla simulation scenarios using AWS and Claude LLM. The solution allowed users to input scenarios via a Python-based Qt UI, which were then translated into executable Python code.
- **Top Honors – Predictive Maintenance Hackathon:** Designed a predictive maintenance solution leveraging machine learning to forecast equipment failures. Utilized sensor data analytics to minimize downtime, optimize maintenance schedules, and reduce operational costs.
- **Participant – WiDS Datathon Challenge 2:** Took part in the Women in Data Science Datathon, contributing to real-world data challenges and advancing data science skills through collaborative problem-solving.

Personal Details:

Name	: Akhilraaj M
Gender	: Male
Nationality	: Indian
Languages Known	: English, Tamil
Interests	: Travel, Cycling, Trekking, Design, Blogging, Movies

Declaration

I hereby declare that the above information's furnished are true to the best of my knowledge and belief.

Place: Bengaluru **(Akhilraaj M)**