Akhileshwar Sanathana

Software Engineer | Python, C++ & System Automation

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Summary

Software Engineer with an MSc in AI and strong proficiency in Python and C++. Specialized in building robust, safety-critical software systems, with experience in signal processing, computer vision, and system automation. Passionate about applying engineering discipline to manufacturing and robotics challenges, aiming to contribute to scalable cell therapy solutions at Cellular Origins.

Experience

BGC – Cantor Fitzgerald   January 2024 – July 2024
Software Engineering Intern   London, United Kingdom

- System Reliability: Developed and maintained automation systems using Python and C++ concepts, focusing on error handling and fault tolerance for critical business workflows.
- Code Debugging & Optimization: Collaborated with engineering teams to troubleshoot and refactor legacy scripts, enhancing system performance and maintainability.
- Process Automation: Engineered robust software solutions to reduce manual intervention, ensuring high consistency and reducing human error in complex operational tasks.

PeopleLink   June 2022 – July 2022
Data Mining Intern   Hyderabad, India

- Data Processing: Built data pipelines to clean and analyze large datasets, ensuring data quality for downstream applications.
- Algorithmic Logic: Implemented statistical algorithms to identify patterns and anomalies in structured data.

Education

University of Southampton   September 2024 – September 2025
Artificial Intelligence   Master's Degree
Merit

- Dissertation (Sensor Signal Processing): Engineered a 1D-CNN framework to process noisy data from wearable sensors. Focused on mitigating motion artifacts and ensuring signal integrity, a methodology directly applicable to processing real-time inputs from robotic hardware.

ICFAI Tech University   July 2020 – July 2024
Computer Science and Engineering   Bachelor's Degree
Distinction

Projects

Computer Vision for Defect Detection

- Visual Inspection Systems: Developed deep learning models (ResNet-50) to automate anomaly detection in medical imaging, simulating industrial quality control and visual inspection tasks.
- Safety Critical Software: Implemented rigorous testing and validation pipelines to ensure model accuracy (99%) in high-stakes environments, aligning with safety-critical software standards.

Computer Vision, Anomaly Detection, Quality Control, Python

Signal Processing Pipeline

- Data Stream Processing: Designed low-latency pipelines using Python (Librosa) to ingest and process complex audio signals, demonstrating capability in handling sensor data streams.
- Algorithm Implementation: Applied Fourier transforms and spectrogram analysis to extract features from raw signals, essential for interpreting robotic sensor feedback.

Signal Processing, Data Pipelines, Python, C++ Concepts

Backend System Architecture

- System Design: Architected a modular software backend using Python and Redis, focusing on efficient memory management and low-latency data retrieval.
- Integration: Integrated external APIs and protocols to ensure seamless communication between system modules.

System Architecture, Python, Redis

Volunteering

Enactus UK & Ireland   2024 – Present
Member

Collaborating in multidisciplinary teams to solve engineering and social challenges.

Skills

Core Languages

Python (High Proficiency), C++, C, SQL, JavaScript

Systems & Reliability

Fault Detection, System Automation, Unit Testing, Signal Processing, Azure Cloud

AI & Computer Vision

OpenCV, TensorFlow, PyTorch, Anomaly Detection, Data Pipelines

Soft Skills

Multidisciplinary Collaboration, Problem Solving, Technical Documentation, Adaptability

Certifications

Amazon Web Services (AWS) Certification   August 2022
Amazon Web Services

Google AI Essentials Certification   August 2025
Google
https://www.coursera.org/account/accomplishments/verify/HJV7ITUANWYO

Artificial Intelligence Fundamentals   October 2025
IBM
https://www.credly.com/badges/9e6f3425-0797-41f6-ae60-baccad2fdef4/linked_in_profile

Github Copilot   July 2025
Microsoft
https://www.credly.com/badges/f43652cf-9540-4282-9b9e-a9334d703409/linked_in_profile

Publications

Metaverse and Blockchain Use Cases and Applications   12 August 2025
Taylor and Francis Group
https://doi.org/10.1201/9781003559269

Authored technical research on secure digital ecosystems and data integrity.