**PROFESSIONAL SUMMARY**

Certified Automotive Functional Safety Engineer with over 6 years of experience designing and architecting safety-critical software systems, including System-on-Chip (SoC) and System-in-Package (SiP). Proven expertise in automotive functional safety standards (ISO 26262) and a track record of delivering scalable, reliable, and compliant solutions in the automotive and railway sectors. Skilled in software development, safety architecture, and cross-functional collaboration, I am eager to re-engage in the professional field after a two-year entrepreneurial hiatus, bringing a unique perspective gained through solopreneur ship.

**PROFESSIONAL EXPERIENCE**

**Systems Engineer** January 2020 – April 2023 Qualcomm, San Diego, CA

My responsibilities included, but were not limited to:

* Spearheaded functional safety architecture and compliance for System-in-Package (SiP) and System-on-Chip (SoC) designs, ensuring ISO 26262 compliance, which contributed to Qualcomm's successful certification of safety-critical automotive products.
* Collaborated with vendors and IP teams to streamline functional safety integration, optimizing SoC design cycles and reducing time-to-market for Qualcomm’s automotive SoCs.
* Utilized Sparx Systems Enterprise Architect to model system use cases, creating Block Definition Diagrams (BDD), state-machines, sequence, and activity diagrams, enabling faster validation and efficient cross-team collaboration.
* Conducted FMEDA, DFMEA, and DFA safety analyses, proactively identifying and mitigating potential failures, improving the reliability and fault tolerance of Qualcomm’s SiPs and SoCs.
* Authored technical safety concepts and architecture specifications, providing clear guidelines for development teams, reducing redesign efforts, and ensuring seamless safety certification.
* Developed Python automation scripts, significantly reducing manual effort in safety analysis, documentation, and traceability, leading to a significant improvement in process efficiency.
* Designed flowcharts and technical documentation, improving customer engagement and enabling IP teams to better understand and optimize safety mechanisms, enhancing Qualcomm's customer satisfaction and technical leadership.
* Led documentation and tracking of system-level changes using JIRA, improving traceability and audit readiness, ensuring a smooth certification process with internal and external assessors.
* Ensured ISO 26262-compliant development lifecycle for Qualcomm’s automotive safety work products, enabling successful delivery of ASIL-rated SoCs.
* Performed safety analysis for sensor-based ADAS functions, including perception (LiDAR, RADAR, GPS, Video Cam) and sensor fusion, strengthening Qualcomm’s ADAS portfolio by enhancing system safety and fault recovery strategies.

**Systems Engineering Intern** May 2019 – Aug 2019

Qualcomm, San Diego, CA

* Led the implementation of the tool qualification process for Qualcomm’s internal tools, ensuring ISO 26262 compliance, which enhanced the safety validation workflow and improved audit readiness.
* Conducted a gap analysis between international functional safety standards and existing compliance practices, identifying key deficiencies and proposing methodologies to bridge the gaps, improving safety process alignment.
* Developed a proof-of-concept web application using Java Spring Boot, enabling automated tool qualification tracking and reducing manual compliance efforts, enhancing efficiency in safety audits.

**Graduate Research Assistant** Oct 2018 – May 2019

ECE department, University of Florida, FL

* Designed and implemented an ML-based detection and mitigation system to enhance the robustness of Cooperative Adaptive Cruise Control (CACC), a key component in ADAS and autonomous driving.
* Simulated CACC system vulnerabilities and hacking scenarios using Python, identifying potential cyber threats and developing countermeasures to improve resilience against attacks.
* Developed a proof-of-concept for autonomous vehicle security, strengthening vehicle-to-vehicle (V2V) communication protocols to enhance safety and reliability in connected driving environments.

**Software Designer** July 2016 – July 2018

Alstom Transport, Bangalore, India

My responsibilities included:

* Led full-cycle software development for the Maintenance Support System (MSS), managing system and software requirements, test case design, development, and verification/validation (V&V), improving railway maintenance efficiency.
* Designed and developed REST APIs for metro and main-line railway MSS, enabling real-time health monitoring and automated maintenance service requests across multiple railway sub-systems.
* Empowered the customer engineering team with streamlined installation and maintenance processes for MSS, enhancing system reliability and reducing downtime.
* Implemented bug fixes and feature enhancements in the MSS front-end (HTML) and back-end, using ClearCase and ClearQuest, leading to a more stable and efficient system.
* Collaborated with embedded systems designers to develop software for periodic maintenance of onboard computer systems in European Rail Traffic Management System (ERTMS) trains at Alstom Belgium, improving train reliability.
* Owned the traceability of the entire software development lifecycle (SDLC) for MSS and various projects, using Reqtify, ensuring seamless compliance with safety and quality standards.

**Train Control Validation Intern**  May 2015 – July 2015

Alstom Transport, Bangalore, India

* Designed and developed a Low Voltage Control logic simulation, implementing train control system designs, improving system validation efficiency for railway safety compliance.
* Developed a full validation platform to simulate the train operator’s console for the Indian metro railway system, delivering the project in just two months, which accelerated the roadmap by a full year and significantly reduced testing and validation time.

**SKILLS**

Programming Languages : JAVA | Python | C/C++ | HTML | XML | Elixir

Databases : PostgreSQL | MySQL

Frameworks : Spring Boot | Phoenix | Bootstrap

**PROJECTS**

All academic and competitive projects are available here: <https://sattanaathan.github.io/projects.html>

**CERTIFICATES**

TÜV SÜD Certified ISO-26262 Functional Safety Engineer May 2022 · No Expiration Date

Certificate No.: IN/14663/152838

**EDUCATION**

**Master of Science, Electrical and Computer Engineering** Dec 2019

University of Florida, Gainesville, FL

**Bachelor of Technology, Electrical and Electronics Engineering** May 2016

National Institute of Technology, Trichy (NIT Trichy), India

**LEADERSHIP EXPERIENCE**

**Cofounder and Lead Volunteer – HumaNITTy, Trichy, India** Sep. 2014 – July 2018

Lead a national award-winning philanthropy group during various volunteering events.