

# SATTANAATHAN THAYUMANAN

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<https://www.linkedin.com/in/sattanaathan-thayumanan/> | <https://sattanaathan.github.io/>

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## ABOUT ME

A system software designer with six years of experience designing and architecting software systems and automotive safety systems. With my recent experience as a safety systems engineer, I am looking for a change and would like to jump back to working on software and building scalable SW solutions.

## PROFESSIONAL EXPERIENCE

### Systems Engineer

January 2020 – Present

Qualcomm, San Diego, CA

My role as an Automotive Safety Systems Engineer is to understand the functional safety expectations of a System-in-Package (SiP) and System-on-Chip (SoC). I coordinate with vendors and IP teams that make up the SoC and SiP to achieve the automotive system's intended functionality and functional safety per ISO 26262 (International Road Vehicles Functional Safety Standards).

My responsibilities include, but are not limited to:

- Understanding the automotive system use-cases and the role of individual sub-systems in the use case.
- System Modelling using Sparx Systems Enterprise Architect to simulate SoC functions and use case.
  - Architectural Diagram such as Block Definition Diagrams (BDD)
  - Behavioral Diagrams such as state-machines, sequence, and activity diagrams.
- Performed qualitative and quantitative functional safety analyses such as FMEDA, DFMEA, and DFA for various Qualcomm SiPs and SoCs.
- Authoring technical safety concept and architecture specification documents for Qualcomm SoCs.
- Preparing flow charts, diagrams, and presentations to represent an SoC and IP visually. Such documents are used for:
  - Effective customer engagement
  - Coordinating with various IP teams to explain each IP's functionality and role, interactions with other IPs, and the SoC to achieve the end goal.
- Developed Python scripts to automate and speed up the documentation, safety analysis, and traceability process.
- Documenting and tracking IP and system level changes through the JIRA tool.
- Establishing traceability for the entire functional safety life cycle of Qualcomm SoCs and SiPs.
- Ensuring functional safety work products are developed adhering to functional safety lifecycle processes according to ISO 26262.
- Played an integral role in internal and external audits and assessments for Qualcomm SoCs and SiPs.

### Systems Engineering Intern

May 2019 – Aug 2019

Qualcomm, San Diego, CA

- Played a crucial role in implementing the tool qualification process for Qualcomm internal tools per ISO 26262.
- Performed gap analysis between the international standard and existing functional safety compliance in Qualcomm tools and provided a methodology to bridge it.
- Developed a proof-of-concept web app using JAVA Spring Boot to establish the tool qualification process for Qualcomm.

### Graduate Research Assistant

Oct 2018 – May 2019

ECE department, University of Florida, FL

- Designed and implemented an ML-based detection and mitigation system to introduce robustness in the Co-operative Adaptive Cruise Control (CACC) system.
  - Developed a proof-of-concept by simulating the CACC system and hacking scenarios using Python.

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## Software Designer

July 2016 – July 2018

Alstom Transport, Bangalore, India

My responsibilities included:

- Worked on every stage of the software development lifecycle (SDLC) from deriving system and software requirements, designing test cases from requirements, code development, and then running verification and validation test cases on the Maintenance Support System (MSS).
- Designed and developed REST APIs for the MSS in metro and main-line rail transportation.
  - The MSS is a web app based on Spring Boot and Maven, which manages health data (errors and warnings) and maintenance service requests for all railway sub-systems across different servers.
  - The database used to manage and store the health data was PostgreSQL on Red Hat Enterprise Linux.
- Enabling the customer engineering team to install and maintain the MSS for metro and main-line rail transportation.
- Worked on bug fixes and enhancement change requests in the MSS, both front-end (HTML) and back-end through the ClearCase and ClearQuest tools.
- Collaborated with designers to develop an embedded systems software to perform periodic maintenance of on-board computer systems in European Rail Traffic Management System (ERTMS) trains at Alstom Belgium.
- Owned the traceability of the entire SDLC for MSS and various other projects using the ReqTify tool.

## Train Control Validation Intern

May 2015 – July 2015

Alstom Transport, Bangalore, India

- Designed and developed a Low Voltage Control logic simulation, implementing the train control system design.
- Designed and developed an entire validation platform that simulates the train operator's console for the Indian metro railway system in 2 months, accelerating the project road map by a year.

## 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  
Certificate No.: IN/14663/152838

May 2022 · No Expiration Date

## 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.