

# SURESH KUMAR VIJAYAN

## Software Developer

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## Summary

- Software Developer with 6+ years of Experience in developing and customizing **CAD / CAE automation** tools and Engineering Applications.
- Strong expertise in **CAD customization** using **CATIA V5, SolidWorks, Creo** and **Hypermesh**, delivering efficient and reliable automated design solutions.
- Proficient in developing engineering automation tools using **C#.NET, C++, VBA, TCL/TK, JavaScript** and **Python**.
- Extensive experience in **design workflow automation, developing custom toolkits** and scripts to improve productivity and **reduce manual effort**.
- Hands-on experience in **GUI-based engineering application** development using **WPF** and **Windows Forms**.
- Skilled in **BOM automation, CAD data validation**, and **rule-based design checking**.
- Experience in maintaining and enhancing **legacy engineering automation tools**.
- Strong background in interfacing **CAD tools** with engineering systems and supporting integration with enterprise platforms.
- Proven ability in **troubleshooting, testing**, and **validating automation** tools to ensure **accuracy** and **reliability**.

## Experience

### Global Blue

#### Software Engineer

Porto, Portugal

06/2024 - 12/2025

- Developed and maintained Windows-based applications using **C#** and **WPF** for the **IC2 Integra** system.
- Designed and enhanced **terminal-based application** in **C++** to support POS (Point of Sale) system integrations.
- Conducted **code maintenance, refactoring**, and **bug fixing** to improve system performance and reduce production issues.
- Supported **CI/CD** deployments using Jenkins, ensuring smooth build and deployment pipelines.
- Actively participated in **Agile/Scrum** ceremonies including daily stand-ups, sprint planning, reviews, and retrospectives.
- Used **JIRA** for task tracking, sprint planning, defect management, and agile workflow management.
- Reduced development time by **30%** by creating reusable components for **5** projects.

### Capgemini

#### Software Engineer

Fundão, Portugal

12/2022 - 05/2024

- Developed and maintained Windows-based applications using **C#** and **C++** for ThermoFisher and Malvern Panalytical.
- Developed automation tools to support **product development workflows** for Thermo Fisher and Malvern Panalytical applications.
- Developed software modules to automate **configuration, validation**, and **testing** of infotainment system components.
- Implemented **software enhancements, performance optimizations**, and **bug fixes** to ensure system stability.
- Supported build and deployment activities using **CI/CD** tools.
- Used JIRA for task management, defect tracking, and sprint execution.

### Saipem

#### Software Engineer

Chennai, India

12/2020 - 05/2022

- Designed and developed **CAD automation tools** for **CATIA** and **SolidWorks** to streamline mechanical design and drafting processes.
- Automated the **design and generation of Jigs and Fixtures** using **C#** and **C++**, reducing manual modeling time and improving design accuracy.
- Built CAD-integrated tools to automate **part creation, assembly generation, and drawing creation**.
- Developed logic-driven automation to generate **standardized engineering outputs** based on user inputs and design rules.
- Implemented automation to reduce manual effort in **proposal preparation and engineering documentation**.
- Maintained and enhanced **legacy automation systems**, improving reliability and performance.
- Supported system integration across **CAD tools and enterprise applications**.

### Faurecia

#### KBE Engineer

Bangalore, India

11/2018 - 10/2020

- CAD Tools Development using **Python, C#.NET, and C++**.
- Maintained legacy tools developed using **CATVBA**.
- Developed and implemented **design process automation** to reduce production time and delivery errors using **Python, C#.NET, and C++**.
- Collaborated with the **Indian Institute of Science (IISc)** team to develop **FIDES – Faurecia Intelligent Design Engineering System**.
- Researched emerging **CAD technologies and automation trends** to stay updated with industry best practices.
- Followed international engineering standards such as **ISO, ANSI, and ASME** during design and automation development.

## Experience

### HCLTech

Chennai, India

#### Software Engineer

10/2016 - 11/2018

- Involved in **CAE Tools customization** using **TCL/TK and Python** scripting languages.
- Coordinated with **CAE engineers** to evaluate and improve software and standardized engineering processes.
- Developed various **Macros in Hypermesh and ANSA** tools and minimized project execution time.
- Involved in **Excel customization** to support various document processes in projects.
- Developed **CATIA Applications and automation tools using VBA, Python, and C++**.

### Trikonic Technology Services LLP

Chennai, India

#### Application Engineer

09/2015 - 03/2016

- CAD Tools Development with **SolidWorks** using **C#.NET**.

### Unique Engineering

Chennai, India

#### Design Engineer

07/2013 - 07/2015

- Designed **Jigs and Fixtures** for customer parts using **SolidWorks, CATIA, Pro-e**.

## Skills

CAD / CAE Tools: CATIA V5, Creo, SolidWorks, HyperMesh, ANSA

Programming Languages: C#.Net, C++, VBA, TCL/TK, JavaScript, Python

Frameworks & Technologies: .NET Framework, WPF, MVVM Architecture, Creo ToolKit C++, CAT VBA Script, Agile/Scrum, SDLC, SOLID

Engineering Systems: BOM Management, Engineering Workflow Processes, Design Data Validation

Tools & IDEs: Visual Studio, Git, TFS, Azure DevOps, GitHub, Bitbucket, GitLab

Testing & Quality: Unit Testing, Functional Testing, Debugging & Troubleshooting, Code Refactoring

## Projects

### AI-Driven CATIA Automation (Personal Project)

- Developed a **C# and CATIA V5 automation framework** using a custom Model Command Processor (MCP) to interpret AI-generated commands.
- Built a **REST API** exposing CATIA operations (new part, block creation, hole creation) and integrated it with **ChatGPT Actions** using OpenAPI.
- Enabled CATIA to respond to **natural-language instructions** and generate 3D models automatically.
- Implemented ngrok-based secure tunneling to connect ChatGPT with local CATIA automation services.
- Demonstrated a **proof of concept for conversational CAD**, reducing manual modeling effort and showcasing AI-assisted design possibilities.

### SMART Program for Energy and City Development

- Increased grid efficiency and reduced planning costs by 40% by implementing energy solutions.
- Generate a detailed report with a **dashboard** for **smart city development planning**.
- Calculate the cost of residence with green energy and aquaculture farms.
- Calculate the CAPEX and OPEX for configured renewable energies.

### FIDES – Faurecia Intelligent Design Engineering System

- Developed **CAD automation** modules to generate **design configurations** based on customer inputs.
- Automated design validation rules to reduce manual errors.
- Integrated CATIA automation workflows using Python and C#.NET.

### Enabler Silencer Application

- Developed CATIA V5 based automation tool to create **Silencer Assembly Models** based on predefined CAD methodologies.
- Implemented design automation logic using **C#.NET** to automate part creation and assembly structure.

### Drawing Spell Checker Tool

- Built a **CATIA tool** to automatically check and correct spelling errors in drawing sheets.
- Developed using **VBA** to improve drawing quality and reduce manual review effort.

### View Labelling & Grid Location Automation

- Created a **CATIA automation** tool to rename drawing views automatically based on product tree data.
- Implemented using **VBA**, improving drafting accuracy and standardization.

## Projects

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### Island Elements Checker – HyperMesh / ANSA

- Developed a **CAE automation script** to detect and manage isolated mesh elements in FE models.
- Implemented using **TCL/TK** and Python.
- Reduced manual mesh checking time significantly.

### BOM Assignment Automation Tool

- Built a tool to automatically assign material properties and thickness from **CAD BOM** to FE models.
- Integrated material databases with HyperMesh using **TCL/TK scripting**.

### Headstock Design Automation-Kennametal

- Increased engineering efficiency by developing CAD automation application using **SolidWorks API** and **C#.NET**.
- Automated part modeling, gear calculations, assembly creation, drawing generation, and BOM export.

## Education

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Info Insitute of Engineering Bachelor of Mechanical Engineering	2010 - 2013
Sri Ramakrishna Polytechnic College Diploma in Mechanical Engineering	2007 - 2010

## Awards

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Innovation Award - Faurecia	Certification of Excellence - HCL Technologies
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