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Summary

- I hold a bachelor's degree in mechanical engineering and bring 7 years of diverse experience as an engineer, with a focus on automation projects.
- My skillset spans a diverse range of software applications, including proficiency in
  - Developing web applications using FastAPI, Django
  - Creating desktop-based applications using WinForms, WPF and tkinter.
  - Implementing Excel automation solutions tailored for factory environments.
  - Harnessing the power of Selenium for web scrapping.
  - Leveraging CAD automation for Pro/E, CATIA, NX, and AutoCAD.
  - Demonstrating proficiency in miscellaneous applications.
- Furthermore, I have mastered the art of continuous learning and adapting, which allows me to stay at the forefront of my field by embracing new knowledge and shedding outdated practices.

Role	From	To	Organization
Graduate Engineer Trainee	May 17-2016	May 17-2017	Caresoft Global Pvt Ltd.
Design Engineer	May 17-2017	Feb 01-2020	
Associate Team Lead	Feb 01-2020	Feb 01-2022	
Team Lead	Feb 01-2022	At Present	

Languages/Software/Tools	Level
Python	Expert (4 out of 5)
C#.net	Expert (3 out of 5)
Java	Intermediate (3 out of 5)
VBA	Expert (4 out of 5)
Selenium (Python / C# based)	Expert (5 out of 5)
FastAPI, Django	Expert (3 out of 5)
Frontend (html, CSS, JavaScript)	Intermediate (3 out of 5)
Microsoft Visual Studio	Intermediate (3 out of 5)
VS Code (IDE)	Expert (4 out of 5)
JLink (Creo Automation Language), VBA API - CATIA	Expert (5 out of 5)
AutoCAD / ACAD API – VBA & C#	Intermediate (3 out of 5)
NX Open	Intermediate (2 out of 5)
Raspberry Pi	Beginner (2 out of 5)

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Title: Data Migration	
Scope	• We aim to create an automation application for seamlessly transferring business data from the old software to the new version. • Source - 140 vehicle data entries within the existing module. • This task would typically consume a significant amount of time, estimated between **35000** - **40000** manual hours
Solution	• Understood the existing data and its schema based on new set of rules generated to handle the existing data. • Designed an architecture capable of managing the migration process at various levels.
Role	• Script developer • Data Collection

Title: Integrated Web Application Suit	
Scope	• Identified numerous automation possibilities within our factories. • These opportunities are interconnected with each other. • We're currently working on connecting all aspects to enhance overall efficiency.
Solution	• We've comprehensively analyzed the current process and its structure. • We've developed an architecture that allows us to effectively oversee and manage each automation application through a web-based interface. (Using FASTAPI) • Currently the expected savings are 15000 hrs. per year
Role	• Frontend, backend developer • Business analyst

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Title: DICOM to Video Application using Python	
Scope	• Creating an application for converting DICOM images into a video format, including grid and coordinates • We used Adobe Premiere Pro and Mayavi for images and videos, but they didn't do exactly what we needed. • It's more time consuming by manual (Ex: 10000 image files available for a component or assembly)
Solution	• Utilizing a Python script, DICOM images were consolidated and exported into a video format. • Extracting real-world dimensions from HE scans images, a dimension grid is generated and applied to the images. • Streamlining operations by removing dependencies on commercial applications
Role	• Script developer • DICOM (HE Scan) data handler

Title: Weight Data Builder from Images – Using Azure	
Scope	• Developing an application to extract text values from images, where each image includes metadata indicating weight, part number, serial number, and additional information
Solution	• Created a script using Azure's Python API to efficiently extract information from images in batches. • Facilitated user access to the extracted data through a desktop application
Role	• Script developer

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Title: Photobooth Robot	
Scope	• For conducting physical benchmarking in the automotive industry, it's essential to capture images of the teardown components. • Each component requires approximately 15 different images. • Photographers play a crucial role in this process. Initially, our goal is to build a photo robot specifically designed for small components measuring 30x30x30 cm.
Solution	• We've conducted a thorough analysis of the current process and its underlying structure. • In our quest to enhance the process, we've embarked on a research initiative focused on automatic image capturing mechanisms. • To demonstrate the feasibility of this concept, we've successfully executed a proof-of-concept (POC) using Raspberry Pi and DC motor turntable setups for automated image capture.
Role	• Hardware Assembler • Developer

Title: Drawing downloader Automation using C#.Net	
Scope	• Developing a system to download CAD model drawings from a specified site and organize them into a standardized folder structure. • Anticipated around 400 models as daily input for the task requests.
Solution	• Built an app to automatically download models with Selenium, using work request numbers. • Folder structures were maintained based on the defined parameters. • Expected to save around 2000 hours annually
Role	• Process Analyst • Script developer

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Title: Reverse Engineering CAD Model QC - CATIA	
Scope	• In reverse engineering, a complete CAD model of the vehicle is usually generated. • To meet customer requirements, specific quality checkpoints must be satisfied. • These quality checkpoints include type verification, start part assessment, external link examination, generic name verification, parameter validation, sketch evaluation, deactivated component inspection, mirror and symmetry assessment, swap visible space verification, quantity validation, bill of materials (BOM) examination, fix constraint verification, material assessment, and material color code confirmation. • A full vehicle CAD contains nearly 5000 CAD parts
Solution	• We start with a complete vehicle CAD assembly model and a Bill of Materials (BOM) in Excel format as our initial input. • When working with 5000 model files, it has been observed that it takes approximately 200-400 hours per vehicle to verify the qc checkpoints. • After implementing the automation solution using vba script, the report shall be generated in 5-8 hours. • Based on the report, the delivery shall be proceeded
Role	• Script Developer
Recognition/Reward	• Quarterly Outstanding Performer

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Title: Material Defining Automation - CATIA	
Scope	• Assigning material types to CAD models, taking 6 minutes per model with references to multiple sites and information. For 1000 CAD models, the process would take around ~80 to 100 hours
Solution	• Developed a VBA Script to defining materials to CAD files in batch mode using data from the BOM data, Completing the process for ~500 model files in approximately 1 hour
Role	• Script Developer
Recognition/Reward	• Awarded “Pat on the Back” from the Organization

Title: Properties Defining Automation - CATIA	
Scope	• Basic properties of CATIA CAD model files include Name, Revision, Description, Definition, and Nomenclature. It takes ~5 minutes to define these properties for a single CAD model. • Defining properties for 1000 CAD models would require approximately 100 hours.
Solution	• Created a VBA script to automatically define model properties using data from the BOM (Bill of Materials) Excel file
Role	• Script Developer

Title: Bill of Material Comparison Tool using C#.Net	
Scope	• Generating the Bill of Material Report by extracting data from Windchill (Creo Workspace) into Excel. • The process of comparing and consolidating the BOM for an assembly typically takes around 2 hours
Solution	• Programmed a solution to compare Windchill Bill of Material with the actual Bill of Material. • Achieved the comparison in less than 15 seconds.

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Title: Batch Export AutoCAD Drawing to PDF using VBA	
Scope	• Developing a solution to export AutoCAD DWG files to PDF on a per-sheet basis for many files. • Notably, there are no readily available freeware options within the AutoCAD application for this specific activity
Solution	• Utilized a VBA script to export AutoCAD drawing sheets into individual PDFs. • Developed a PDF merger tool in Visual Studio using C# to combine the exported PDFs from AutoCAD into a single PDF in batch mode.
Role	• Script developer

Title: ACAD Rectangle Selection Tool	
Scope	• Creating a process to export AutoCAD DWG text into the active Excel sheet for Bill of Materials (BOM) preparation. • Working with 25-year-old Whirlpool AutoCAD files as input, which were created without adhering to specific standards. • Manual extraction and spell-checking of text from the drawings are time-consuming tasks.
Solution	• Introduced a Rectangle selection tool through a VBA script in AutoCAD. • Enabled users to open AutoCAD drawing sheets and manually select text within the Acad drawing. • The selected text is then automatically exported to the active Excel sheet.
Role	• Script developer

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Title: Automation of Agriculture Dryer Modelling in Creo	
Scope	• Generating CAD models for various quotations involves creating unique files for each quote. • The process of creating CAD models for each quote typically takes 3-4 hours.
Solution	• Implemented a master model and parameter customization to efficiently develop models in less than a minute. • Standard templates are utilized to minimize quality control time.
Role	• CAD Designer • Script developer

Title: Extracting Point Coordinates in BIW of a Car in Creo	
Scope	• Creating a process to extract all datum points with their properties based on the Parent Coordinate System.
Solution	• Developed an internal Java application to extract all point features from a given CAD model as input.
Role	• Script developer
Recognition/Reward	• Awarded “Certificate of Excellence” from the Organization

Title: Attribute and Material Handler for NX	
Scope	• Creating an application to generate attributes and assign materials to part models based on a given database, specifically for NX models.
Solution	• Created a script using NX Open using C# to manage part models and their attributes.
Role	• Script developer