

# HEMANTH KUMAR P

Software Engineer  
and Python Tool  
Developer

## Personal Info

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### DOB:

23 Jan 1997

### Nationality:

Indian

### Gender: Male

### Marital Status: Unmarried

### Languages: English, Kannada and Hindi

## Social Media

### LinkedIn:

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## CAREER OBJECTIVE

Looking forward for an opportunity in a challenging environment, where I can utilize my experience and skills in contributing effectively to the success of the organization and for the improvement of my personal skills.

## WORK EXPERIENCE

Currently working as a Software Engineer (Embedded Engineer) and Python Tool Developer in SAFRAN Engineering Services India in Integrated system department (INSY) from August 2018.

## SYNOPSIS

1. Experience in **Independent Verification and Validation (V&V)**.
2. Ample knowledge on **DO-178B** guidelines.
3. Good exposure to developing simulation software and testing concepts.
4. Domain experience includes component testing and development of models, integration testing.
5. Experienced in **Requirement Based Testing (RBT), Component Testing(CT) and Software Unit Testing (UT) and scripts in Python language**.
6. Experienced in tools like **IBM DOORS, IBM RTRT, Tortoise SVN, Telelogic CM Synergy**.
7. Expertise in **MC/DC** (Modified Condition Decision Coverage).
8. Good understanding of **Software Development Life Cycle**.
9. Good Experience in Test Case Design, Development, Test Execution, Defect Reporting, Validation and Documentation.
10. Involved in Technical check.
11. Possess ability to successfully co-ordinate with the cross functional teams.
12. Positive attitude, Quick learner, Analytical and team management skills.

## Skillset

Languages	: Python, ADA, C basics
Project Related Tools	: Matlab and Simulink, IBM RTRT, ATC ADEPAUTO, SCTL Analyzer
Databases	: CM Synergy, Doors 9.3, Tortoise SVN
Access Systems	: Windows 7/8/10
Standards	: DO178B
Other Tools	: MS-Office

## Education

- Bachelor of Engineering (Electronics and Communication), Aggregate: 72.19%, Year : 2014-2018
- 12th Std, Vijaya PU College, Bangalore, 12th Std (PCMB), Percentage: 87.83%, Year : 2013-2014
- 10th Std, Bangalore Higher Secondary School, Bangalore, Percentage: 81.92%, Year : 2011-2012

## **PROJECT TITLE: Python Tool Development**

- Client : SHE (Turbomeca) and SESI (INDIA)
- Title : Python Tool Development
- OS : Windows 7 & 10

### **Description:**

The Python tools are developed to minimise the process involved in Generation 4 and Generation 2 series of engines while performing Verification and Validation. All the tools are qualified from SESI and few are qualified from SHE Turbomeca after development.

### **Tools:**

1. Simulation tool for Unit testing:
  - Creating a simulation script as per ADA source file to verify the test plans written by tester before passing it to Native execution.
2. MAT to CSV converter:
  - RES.mat variables are converted in to column with variable name as header in CSV file, where RES.mat is created based on MatLab execution using the TCML test plans after Native execution contain variables with different formats in compliance with Simulink Model (This script includes packages like **Scipy.io, Numpy, CSV, Collections, Ast, math and nested\_lookup**).
3. IVVR G4 Filler:
  - IVVR status filling tool in excel is designed to automate the result filling of IVVR from output of ADEP AUTO and SCTL tool chain. This tool is used during T4 activity of G4 component testing, where we have target "CIBLE" or object code "EOC" execution and scope of DO178B (This script includes packages like **Numpy, Scipy.io, CSV, Collections, Ast, math and nested\_lookup**)
4. SRS Diffing:
  - System Requirement Specification (SRS) of different engines are extracted in excel from DOORS which compares each requirements from one engine to another and gives percentage basis result for reuse of requirement in any of the Engine Verification process (This script includes packages like **Openpyxl, Pandas, OS, Collections**)
5. IVVR Reuse:
  - This tool is an extension of SRS Diffing tool. Based on SRS diffing tool, this tool decides the test plans which has to be reused for the current campaign certification of engine (This script includes packages like **Openpyxl, Pandas, OS, Collections**)
6. G2 Unit testing coverage matrix generator:
  - Tool is used to generate coverage matrix after performing Unit testing, which reads Test number, branches, type of test (Limit Test, Robustness Test). This tool reduces much effort of a tester do write coverage matrix manually. (This script includes packages like **OS and collections**)

7. G2 Unit testing variable consistency checker:
  - Tool is effective in finding the missing variables in compared with each test cases in Unit test plans. The number of variables from one test to another should be equal.
8. Corresp Generator:
  - Used to create corresp (Corresp is a list of variables from Simulink model along with the path of the variable) for generating Black Box to perform Verification.

**Responsibilities:**

- Improving efficiency in the project by reducing the time spending by the Testing, Review team.
- Converting .py script to .exe format as tester or reviewer need not to install the packages included in .py scripts.

## Project #2

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**PROJECT TITLE: Engine Control System for ARDIDEN, ANETO AND ARRIEL Generation 4 series of engines**

- Client : SHE (Turbomeca)
- Title : Generation 4 series of engine - Component Testing
- OS : Windows 7 & 10
- Environment : Matlab, Simulink, StateFlow, Optimization Toolbox
- Tools : SVN, ADepAuto 1.7, ADepAuto 3.0.3, SCADE 5
- Database Tools : Telelogic Rational Doors 9.3
- Methodology : DO-178B
- Configuration Tool : Telelogic CM synergy 6.5

**Description:**

The Full Authority Digital Engine Control (FADEC) is an electronic engine control system for managing engine power and controlling safety parameters for the helicopter engines. The project involved performing the component testing of the CSS in accordance with the SDD and is a level 'A' software as per DO-178B.

This project is carried out the component testing process for FADEC for ARDIDEN1U, ARRIEL2D and ANETO1K engines using new generation 4(G4) process of software development. G4 process is based on software reusability principle.

**Responsibilities:**

- Verifying compliance of SRS and the implementation.
- Writing test cases to verify the requirements.
- Executing the test cases in MATLAB and finding the problems in functionality.
- Generating and analysis of the coverage report for MTC activity as per DO-178B level-A.

- Reviewing the test products delivered by team members.
- Updating the test plans in certified tools DOORS 9.3 for G4
- Configuring the products and files in CM Synergy.
- Other activities like Global result sheet update, MTC analysis, IVVR sheet update, Formal execution.

## Project #3

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### **PROJECT TITLE: Engine Control System for ARRANO Generation 4 series of engines**

- Client : SHE (Turbomeca)
- Title : Generation 4 series of engine - Component Testing
- OS : Windows 7 & 10
- Tools : SVN, SCTL Analyzer, SCADE 6
- Database Tools : Telelogic Rational Doors 9.3
- Methodology : DO-178B
- Configuration Tool : Telelogic CM synergy 6.5

### **Description:**

The Full Authority Digital Engine Control (FADEC) is an electronic engine control system for managing engine power and controlling safety parameters for the helicopter engines. The project involved performing the component testing of the CSS in accordance with the SRS and is a level 'A' software as per DO-178B.

This project is carried out the component testing process for FADEC for ARRANO1A engines using new generation 4(G4) process of software development. G4 process is based on software reusability principle.

### **Responsibilities:**

- Verifying compliance of SRS and the implementation.
- Writing test cases to verify the high level requirements.
- Executing the test cases in SCTL analyser and finding the problems in functionality.
- Generating the problem report in case of any issues.
- Generating and analysis of the coverage report for MTC activity as per DO-178B level-A.
- Reviewing the test products delivered by team members.
- Updating the test plans in certified tools DOORS 9.3 for G4
- Configuring the products and files CM Synergy.
- Other activities like Global result sheet update, MTC analysis, IVVR sheet updation, Formal execution.

# Project #4

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## **PROJECT TITLE: Engine Control System for ARRIEL2B1, ARRIUS2B2 Generation 2 series of engines**

- Client : SHE (Turbomeca)
- Title : Generation 2 series of engine - UNIT Testing
- OS : Windows 7 & 10
- Environment : RTRT
- Tools : SVN, Telelogic Synergy, RTRT, ADA MULTI DEBUGGER
- Database Tools : Telelogic Rational Doors 9.3
- Methodology : D0-178B
- Configuration Tool : Telelogic CM synergy 6.5

### **Description:**

The Full Authority Digital Engine Control (FADEC) is an electronic engine control system used for managing engine power and controlling safety parameters. Engine control system software is used in the FADEC provides adaptive solutions to varying engine control functional requirements.

The ARRIEL2B1 turbine engine control software equipped with an EMC101 computer, and presents the functional traceability with the specification file as well as the traceability of data and parameters.

The main objective of performing the UT activity is to demonstrate that each software component complies with its low-level requirements. The objective of requirements-based low-level testing is to ensure that the software components satisfy their low-level requirements.

### **Responsibilities:**

- Verifying compliance of SDD and the source code.
- Writing test cases to verify the low-level requirements.
- Executing the test cases in IBM RTRT and finding the problems in Functionality.
- Generating the Anomaly report in case of any issues
- Generating and analysis of the Couverture structural report.
- Reviewing the test products delivered by team members and generating dialog card.
- Configuring the products and files CM Synergy.

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### **Declaration:**

I hereby declare that the information and facts stated above are true and correct to the best of my knowledge and belief.

Date :  
Place : Bangalore

Hemanth Kumar P