



ASHWINI KUMAR GUPTA

MSc. Information Technology, University of Stuttgart

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30, Allmandring 20D, 70569, Stuttgart, Germany

linkedin.com/in/ashwinikumarEmbedded

Male | 17 Mar 1997 | Indian

SKILLS

Programming : C/C++

Python Java OOP

SIMULINK OpenCV

Numpy Pandas Matplotlib

MATLAB Tensorflow

wandb TensorBoard

Keras Seaborn Pytorch

Technology

Embedded Linux SoC

CAN PROFIBUS IoT

MQTT PDDL MODBUS

BLE Zigbee I2C SPI

UART Edge devices

RS485 RS232 ROS2

AUTOSAR CNN DL

RL RNN LSTM ML

SVM Transfer Learning

Anomaly Detection Robotics

RTOS Bare Metal

Capacitive Touch

IEEE 802.11

MCU: STM32F4 Atmel

Rasp Pi Renesas RL78

Arduino PIC Arm M0-M4

Cypress ESP32

Software Utility : Eclipse IDE

Visual Studio FreeRTOS

Git/GitHub STM32CubeIDE

Linux CLI Vector CANoe

ABOUT ME

Engineer with focus on research and design of intelligent systems. Excellent team player and collaborator, I brings new perspective, critical thinking and creative ideas on the table.

WORK EXPERIENCE

Software Intern | Robert Bosch GmbH

Since April 2022

Stuttgart, Germany

Project: Vehicle Computer Module

- Setup build environment and board bring up.
- Enable and test of peripherals like CAN, ETH.
- Integration of middle-ware stacks on the multiprocessor core.
- Feasibility and implementation of Software defined vehicle concept on the vehicle computer module.

Research Assistant | University of Stuttgart

Nov 2021 - Feb 2022

Stuttgart, Germany

Project: Anomaly Detection in automotive signals.

- Research literature for state of the art models for time-series data.
- Train and evaluation of models for performance over various types of data-sets.

Design Engineer | Selec Controls Pvt. Ltd.

July 2018 - July 2020

Navi Mumbai, India

Project: Temperature Controllers, Chilling controllers, Process Indicators, PID controller, IDM.

- Design and define critical sections of product as per requirement.
- Modularized firmware, Device driver and Bootloader development in C/C++.
- Conceptualize and implement application specific modules
- Module integration and System testing.

Intern | V.E.S. Institute of Technology

June 2017 - July 2017

Mumbai, India

Project: Asset Management System

Device a method to plan and record essential assets of college and maintain asset record using local database. Design hardware system using RFID, Arduino uno and esp8266. Firmware development for the micro-controller platform and backend support using Python

EDUCATION

Vector CANalyzer

Bash scripting

MS office

Keil μV

QEMU

JTAG

Soft skills: Team Player

Communication

Proactive

Independent

Courteous

Punctual

LANGUAGES

English: C2

German: A2

Hindi: Native

INTEREST

Chess

Cricket

BADGES

Gold: Python

Gold: Problem Solving

MSc. Information Technology | University of Stuttgart

📅 Oct 2020 – ongoing

📍 Stuttgart, Germany

- Embedded Systems major - 2.1 GPA.

B.E Electronics and Telecommunication | V.E.S Institute of Technology

📅 June 2014 – May 2018

📍 Mumbai, India

- GPA: 9.0/10.0

HSC | Kendriya Vidyalaya AFS Thane

📅 April 2012 – March 2014

📍 Thane, India

- Percentage: 90.0 %

SSC | Kendriya Vidyalaya AFS Thane

📅 April 2010 – March 2012

📍 Thane, India

- CGPA : 9.6/10.0

PROJECTS

Smart Manufacturing System

📅 April 2021 - July 2021

Develop an IIoT solution to monitor an electronic manufacturing plant production line and proactively take actions to attain optimized output and reduce waste using AI planning and IoT concepts.

IDRiD - Diabetic Retinopathy

📅 Oct 2021 – Jan 2022

Development of models for classification of a retina input image as NRDR or RDR, based of grade, NRDR : grade 0 and grade 1, RDR: Grade 2 - 4. Use of tensorflow framework on python with custom training and evaluation functions, hyperparameter optimization using wandb tool while implementing random search and minimizing validation test loss over 150 combinations. Achieved best validation loss of 89.68%. Architectures used VGG, Res-net Resnet-se and residual.

Situational risk assessment in automotive systems using Marble Maze as an demonstrator

📅 Oct 2021 – May2022

Using marble maze as demonstrator to quantitatively evaluate risk based on current state as input, while also enhancing real time performance of the demonstrator. Creating of simple statistical model and evaluation of model performance.

Quadruped Robot

📅 June 2017 – April 2018

Using concepts of reinforcement learning and digital image processing, teach robot to walk by itself while analysing and maximizing reward - with actor critic algorithm. Using Arduino Mega and Python openCV.

Delta 3D Printer

📅 Jan 2017 – April 2017

Smart 3D printer, in Delta configuration built on ESP32 + Arduino Mega platform to provide remote printing capability.

Age detection

📅 May 2021

Using UTKFaces dataset to train a CNN network to predict age of input image as an regression problem.

Object classification

📅 June-July 2021

Use Caltec101 dataset to train and develop a CNN network, using transfer learning (MobileNet V2) to classify the objects, accuracy achieved is 97.36 % .

Wine Quality estimation

📅 Sep - Oct 2021

Considering wine quality as an regression problem, estimation of wine quality with different linear, NN and SVM models, compare based on MAE error. Using Exploratory analysis techniques(Univariate, bivariate and correlation analysis) to filter and preprocess data for efficient training and noise removal.

COURSES AND CERTIFICATION

- MATLAB Certificate - Mathworks Onramp
- Simulink Certificate - Simulink Onramp
- "ROS_BASICSCertificate_RIAB6193F105017", which includes fundamentals of ROS for Linux, C++ and Robotics.
- "Embedded Systems Programming on ARM Cortex-M3/M4 Processor", on Udemy. Credential ID UC-88f87fba-4c1d-4bde-bfa1-bc2f4ab117ea