ASHWINI KUMAR GUPTA

MSc. Information Technology, University of Stuttgart

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in linkedin.com/in/ashwinikumarEmbedded

Male | 17 Mar 1997 | Indian

SKILLS

Programming : C/C++
Python | Java | OOP
XML | SCILAB | SIMULINK
VHDL | OpenCV | Numpy
Pandas | MatplotLib
MATLAB

Technology
Embedded Linux
Yocto project | SoC | ROS
CAN | PROFIBUS | IoT
MQTT | PDDL | MODBUS
BLE | Zigbee | I2C | SPI
UART | ROS2
AUTOSAR Classic
Robotics | RTOS | Bare Metal
TARA | IEEE 802.11
ISO 26262 | ASIL
MISRA C/C++

MCU: STM32F4 | Atmel
Rasp Pi | Renesas RL78
Arduino | PIC | Arm M0-M4
Cypress | ESP32 | TI Jacinto

Software Utility : Eclipse IDE
Visual Studio | FreeRTOS
Git/GitHub | Jenkins
GIRA
STM32CubeIDE | Linux CLI
Vector CANoe
Vector CANalyzer
Bash scripting | MS office

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

📅 April 2022 - Sep 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 using Yocto.
- Configuring the Device-tree for correct USB detection.
- U-boot configuration

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.
- Compare performances and real time implementation capability.
- LSTM AE, UAE, OC SVM, OCAN, DAGMM, Tensorflow, sci-kit learn and python.

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

Intern | Embedded Technosolutions

📅 Dec 2015 – Dec 2015   📍 Navi Mumbai, India

Project: Home Automation and Security
- Firmware development for 8051 to interface with HC05, zigbee, Ultrasonic sensor for home automation and security.

EDUCATION

MSc. Information Technology | University of Stuttgart

📅 Oct 2020 – ongoing   📍 Stuttgart, Germany

- Embedded Systems major - 2.0 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.

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Delta 3D Printer

📅 Jan 2017 – April 2017

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

COURSES AND CERTIFICATION

- *LFS169: Introductin to GitOps* –CD, JenkinsX, FluxV2, ArgoCD
- *AUTOSAR Architecture* –AUTOSAR Classic 4.4.0, BSP, ARXML, MCAL, RTE, SWC, CDD.
- *Mathworks Onramp*
- Simulink Onramp
- *Code Foundation for ROS*. UID –RIAB6193F105017. C++, linux, ROS2, Turtle Bot, MQTT.
- "Embedded Systems Programming on ARM Cortex-M3/M4 Processor", on Udemy. Credential ID UC-88f87fba-4c1d-4bde-bfa1-bc2f4ab117ea