ABDUL RAFEH

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Objective

Adaptable and innovative Mechatronics Engineer pursuing an MS in Electrical Engineering (AI & Automation). Possessing strong programming skills in Linux Distribution, Python, C++, and MATLAB, having hands-on experience in Nvidia AI Technologies such as Cuda, JetPack, DeepStream, and TensorRT deployed on Jetson Orin NX and Jetson Nano development kits. Seeking to leverage hands-on experience as an AI and Embedded Systems Engineer in developing cutting-edge solutions in a dynamic engineering & robotics organization.

Experience

AI & Embedded Systems Engineer **Dec 2023 – Present**
Laser & Electro-Optical Solutions, Islamabad

- R&D of computer vision projects comprising cameras, mm-Wave radars, GPS, compass, and lasers.
- Training, testing, customizing, and deploying Deep Learning and ML models on Nvidia development kits.
- Hands on Experience with Nvidia AI Technologies such as Cuda, JetPack, Deepstream TensorRT, Nvidia Orin NX & Nvidia Nano Development kits.
- R&D of Embedded Systems such as Laser Tracker and Motorized Gimbles etc.
- Projects on Single Board Computers like Raspberry Pi and Radxa Rock4SE Kits

Intern – CAD/CAM Lab **June 2021 – September 2021**
Artificial Limb Appliances Centre, AFIRM Rawalpindi

- Experience with 4 Axis CNC Milling Machine, CNC Lathe Machine, Manual Lathe Machine.
- Create and modify 3D CAD designs using SolidWorks & Pro-E.
- Experience in machining of Titanium & Aluminium.
- Experienced with 3D Printer.

Skills

- Hands on Experience with Nvidia AI Technologies such as Cuda, JetPack, DeepStream TensorRT, Nvidia Orin NX & Nvidia Nano Development kits.
- Excellent command in Machine Learning and Artificial Intelligence, adept in implementing and training models using Linux Distribution, Python, TensorFlow, and PyTorch, with a focus on neural networks, deep learning, NLP, and computer vision.
- Excellent knowledge in Control Systems, Embedded System Design, Robotics and Microcontrollers.
- Proficient in C, C++, Arduino, PLC's, FPGA's, MATLAB, SolidWorks, Proteus.

- Excellent command in all Windows versions and Microsoft Office applications.
- Strong interpersonal and communication skills, with a keen ability to collaborate effectively in diverse teams and adapt to dynamic work environments.

Education

MS Electrical Engineering (AI & Autonomous Systems)	(CEME, NUST)	2021-Present	CGPA 3.0
BE Mechatronics Engineering	(Air University, Islamabad)	2018	CGPA 2.53
F.Sc – Pre-Engineering	(FBISE)	2013	71.4%
Matriculation (Science)	(FBISE)	2011	86.7%

Certifications

- Pakistan Engineering Council - Registered Engineer
- Python Programming Language - Coursera - University of Michigan
- AutoCAD – Digiskills.pk
- Graphic Designer - ICEPT Islamabad
- Toyota 5S Methodology – Certificate of Participation

Projects

- **ML/AI Projects**
  1. Foreign Object Debris Detection on Airport Runway using Computer Vision and AI.
  2. Sentence Sentiment Analysis using Python and TensorFlow.
  3. Deep CNN based Driver Sleep Detection System in TensorFlow.
  4. Hardware Implementation of Deep CNN based Driver Sleep Detection System using Orange Pi development Board and Dashcam.
  5. Multiple Linear Regression using Gradient Descent algorithm in MATLAB.
  6. SVM and Decision Trees based Heart Disease Detection from Dataset in MATLAB.
- **Stanley and Pure Pursuit Controller Design for Mobile Robot in MATLAB**
- **Design, Fabrication & Control of A Magnetic Levitated Object**

  Levitated object maintains distance from ground using magnetic levitation. As it is impossible to levitate and stabilize an object in static magnetic fields, the levitation and stabilization of the object is achieved by designing a microcontroller based digital controller. Future work may include implementation of direction control by adding several electromagnets to the levitation platform.
- **Design of Multi-function Mobile Robot**

  The robot can follow walls to find its way. It performs functions like detecting colours, picking, and placing items in boxes.
- **FPGA Based Display on LCD Monitor**
- **Design and Fabrication of Variable Power Supply.**
- **Design and Fabrication of Generic Project Boards for Atmel 8051 and PIC18F452 microcontrollers.**

Languages

- English, Urdu, Punjabi

Activities & Interests

- Interested in Computer Science & E-Tech.
- Likes to play Cricket, Table Tennis, Badminton.

Reference

Available on request.