**Muhammad Ali**

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| **Contact** | **• Email** muali.nov98@gmail.com  **• Phone** +358 41 7232395  **• Address** 259 Voie Domitienne, 34096 Montpellier, France | | | | | | | | | | |
| **Attachments** | **• Self-introduction video • Portfolio • Sample research project • Sample research proposal  • Sample practical work • Supporting documents** | | <https://bit.ly/4eoD8nC> **(old)** <https://mmali.netlify.app/> <https://youtu.be/aDtnSoSor4E> <https://bit.ly/4eqw61I> <https://youtu.be/NtWT8aEdATg> <https://bit.ly/3TqzoK4> | | | | | | | | |
| **Education** | **• Erasmus Mundus Joint Master Degree in Radiation and its Effects   on MicroElectronics and Photonics Technologies (EMJMD RADMEP)**  **▪** Universities:   1. University of Jyväskylä (JYU), Finland 2. Katholieke Universiteit Leuven (KU Leuven), Belgium 3. University of Montpellier (UM), France 4. University Jean Monnet (UJM), France 5. CERN, Switzerland (Workshop: December, 2024)   ▪ Specialization: Microelectronics ▪ Aug-2023 - Sep-2025  **• B.S. Electrical and Electronics Engineering**  ▪ Pakistan Institute of Engineering and Applied Sciences (PIEAS)  ▪ Sep 2018 - June 2022 ▪ Distinction with 2nd position  ▪ CGPA: 3.74 / 4.00  **• Fazaia Degree College, MRF, Kamra**  ▪ School: Matriculation ▪ April 2013 – March 2015  ▪ Percentage: 95 % ▪ Distinction with 1st position | | | | | | | | | | |
| **Work**  **Experience** | **1. Transfer of expertise: 3D SRAM Macro Design in 3D Nanofabric Process Technology**  **i. imec, Leuven, Belgium**  Date: 21-06-2024 ---> 31-08-2024   **ii. LIRMM, Montpellier, France**  Date: 01-10-2024 ---> 31-01-2025   **• Objective:** Learn at IMEC and assist incoming PhD student at LIRMM  **2. Cloud Core Network Engineer at Huawei, OEC tower, Islamabad**  ▪ Date: 01-08-2022 ---> 26-07-2023  ▪ **Group Leader:** 03-10-2022 ---> 26-07-2023  **3. Robotics Engineer at National Institute of Electronics, Sector H-9, Islamabad**  ▪ Date: 02-08-2021 --- 24-09-2021  ▪ Made **two-wheel self-balancing robot**  **4. Vice-president IEEE Robotics PIEAS Student Branch**  ▪ Date: 20-Sep-2021 --- 16-May-2022  ▪ Responsibilities: Organizing seminars and workshops on Robotics | | | | | | | | | | |
| **Research**  **Experience** | • Implementation of deep learning control for a Quadcopter  ▫ Made digital twin of Quadcopter in gazebo environment (in Ubuntu OS)  ▫ Trained the model through Proximal Policy Optimization, a reinforcement learning algorithm  ▫ Replaced the PID algorithm of betaflight with our trained model  ▫ Compiled the modified betaflight to create a hex file  ▫ Assembled the Quadcopter (used STM32F722 microcontroller which runs up to 216 MHz)  ▫ Flashed the hex file to quadcopter using betaflight configurator  ▪ **Video:** <https://youtu.be/aDtnSoSor4E> | | | | | | | | | | |
| **Huawei’s**  **Projects** | • 5G Core Deployment (AMF)  • Cloud Edge (MME)  • Network function virtualization (FusionSphere OpenStack) | | | | | | | | | | |
| **Technical**  **Projects** | • FPGA-based TCP Firewall on Zynq and MicroBlaze with  Mailbox, BRAM, and DDR Storage  • 3D orientation virtualization using Accelerometer and  Gyroscope  • Elemental and Depth Profiling in multilayer thin films using  Time of Flight - Elastic Recoil Detection Analysis (ToF-ERDA)  • Nanoscale Analysis of multilayer thin films using Helium Ion  Microscopy (HIM)  • Maze Solver Robot  • Line follower robot • Image sensor characterization/measurements, and defect assessment  • Color Filter Array (CFA) reconstruction, and Spatial Filtering • Controlling Servo from Web browser wirelessly using ESP32  • Controlling Servo using Potentiometer and ESP32 • SAR ADC (2024)  • 15,000 mAh Laptop Power Bank  • Android P2P messaging App • TID effects on Flash Memory  • Trained Reinforcement Learning agent for autonomous driving  • Reinforcement Learning for Atari Breakout Game  • Trained Neural Network for Image prediction  • Training CartPole to balance itself  • Tic-tac-toe game using a C++ programming language  • Detection of cracks in Ceramic Tiles using Digital Image Processing  • Designed a 1kVA UPS powered by a single-phase 220V/50Hz AC.  • Designed 8-bit SAR ADC (2021)  • Designed and implemented a stepper motor controller  • 35% Duty Cycle Rectangular Waveform using Astable  Multivibrator (555 Timer)  • Temperature Measurement and Calibration using PT100  • RIAA Amplifier  • Parallelization in Distributed Memory Machines  • Parallelization in Shared memory Machines  • Elemental and Depth Profiling in multilayer thin films using  Time of Flight - Elastic Recoil Detection Analysis (ToF-ERDA)  • Nanoscale Analysis of multilayer thin films using Helium Ion  Microscopy (HIM) • Designed a filter  ▪ that removes cross-over distortion from class B push-pull amplifier  ▪ that minimizes noise coming from a tape recorder.  ▪ for a car alternator.  • Huawei’s Projects  ▪ 5G Core Deployment (AMF)  ▪ Cloud Edge (MME)  ▪ Network function virtualization (FusionSphere OpenStack) | | | | | | | [*https://bit.ly/46CVrTf*](https://bit.ly/46CVrTf)[*https://bit.ly/499Y3IV*](https://bit.ly/499Y3IV)[*http://bit.ly/3OovPl2*](http://bit.ly/3OovPl2)  [*http://bit.ly/3OovPl2*](http://bit.ly/3OovPl2)  [*youtu.be/NtWT8aEdATg*](https://youtu.be/NtWT8aEdATg)  [*https://bit.ly/47u4xlu*](https://bit.ly/47u4xlu)  [*https://bit.ly/4dz2lv1*](https://bit.ly/4dz2lv1) [*https://bit.ly/3LXwMzp*](https://bit.ly/3LXwMzp)  [*https://bit.ly/3AkcgDW*](https://bit.ly/3AkcgDW)  [*https://bit.ly/3bRPzNX*](https://bit.ly/3bRPzNX)  [*https://bit.ly/3yoqW71*](https://bit.ly/3yoqW71) *youtu.be/*[*zX1eYh3Lx2A*](https://youtu.be/zX1eYh3Lx2A)  [*youtu.be/wOFHmuyRXFY*](https://youtu.be/wOFHmuyRXFY)  [*https://bit.ly/4fCcrx0*](https://bit.ly/4fCcrx0)  [*https://bit.ly/3XK0TRA*](https://bit.ly/3XK0TRA)  [*https://bit.ly/4gp5IXw*](https://bit.ly/4gp5IXw)  [*https://bit.ly/3lek8P8*](https://bit.ly/3lek8P8)  [*https://bit.ly/4dU5NRv*](https://bit.ly/4dU5NRv)  [*https://bit.ly/3TvCmx3*](https://bit.ly/3TvCmx3)  [*https://bit.ly/3B5lC9p*](https://bit.ly/3B5lC9p)  <https://bit.ly/3XKDAXu>  [*https://bit.ly/4gtEL5h*](https://bit.ly/4gtEL5h)  [*https://bit.ly/3XICQlJ*](https://bit.ly/3XICQlJ)  [*https://bit.ly/47qdP28*](https://bit.ly/47qdP28)  [*https://bit.ly/49agJYm*](https://bit.ly/49agJYm) [*https://bit.ly/3SFCOsg*](https://bit.ly/3SFCOsg)  [*https://bit.ly/3SBFkzZ*](https://bit.ly/3SBFkzZ)[*https://bit.ly/47VVrga*](https://bit.ly/47VVrga)  [*http://bit.ly/3OovPl2*](http://bit.ly/3OovPl2)  *http://bit.ly/3OovPl2*  [*https://bit.ly/4d5papE*](https://bit.ly/4d5papE) | | | |
| **Huawei’s**  **Projects** | • 5G Core Deployment (AMF)  • Cloud Edge (MME)  • Network function virtualization (FusionSphere OpenStack) | | | | | | | | | | |
| **Industrial Visits** | **• IMEC (R&D nanoelectronics, and digital technologies)**  ▪ Leuven, Belgium ▪ 09-04-2024 ▪ Desc: [*https://bit.ly/3SkADZV*](https://bit.ly/3SkADZV)  **• Okmetic (Silicon Wafer manufacture)**  ▪ Vantaa, Finland ▪ 04-10-2023 ▪ Desc: [*https://bit.ly/3SkADZV*](https://bit.ly/3SkADZV)  **• Viasala Oyj (Sensors for space exploration, environmental and industrial measurement)**  ▪ Vantaa, Finland ▪ 04-10-2023 ▪ Desc: [*https://bit.ly/4btTafg*](https://bit.ly/4btTafg)  **• VTT Mikes (Metrology Research Center and Laboratory of Finland)**  ▪ Espoo, Finland ▪ 21-11-2023 ▪ Desc: [*https://bit.ly/3Um4bsN*](https://bit.ly/3Um4bsN)  **• Transfopower (Transformer manufacturer)**  ▪ Lahore, Pakistan ▪ 18-02-2022 ▪ Desc: [*https://bit.ly/47TRqJ3*](https://bit.ly/47TRqJ3)  **• Pak Elektron (Transformers, Grid stations)**  ▪ Lahore, Pakistan ▪ 18-02-2022 ▪ Desc: [*https://bit.ly/494XxM8*](https://bit.ly/494XxM8)  **• Fast Cables Limited (Electrical cable manufacturer)**  ▪ Lahore, Pakistan ▪ 18-02-2022 ▪ Desc: [*https://bit.ly/494oBuZ*](https://bit.ly/494oBuZ)  **• B-PHOT, VUB (Brussels Photonics Institute, Vrije Universiteit Brussel)**  ▪ Brussels, Belgium ▪ 24-01-2024 ▪ Desc: [*https://bit.ly/42jOpk4*](https://bit.ly/42jOpk4) | | | | | | | | | | |
| **Awards** | • BS graduation with 2nd distinction • PKR 18,000 for 2nd position in Huawei’s Global Service Center Skill Contest (Cloud Core Networks) • 2nd position in maze-solver robotics competition • 2nd position in line-follower robotics competition • PKR 15,000 for 2nd position in 2nd semester • Poster Medals  ▪ Master Examinee ▪ Searcher ▪ Perseverer ▪ Diligent Learner | | | | | | | | | | |
| **Skills** | **• Programming Languages**  C++, Python, C, and Java  **• Machine Learning**  Reinforcement Learning  **• Integrated Development Environments (IDEs)**  MATLAB/Simulink, Cadense, Pylon, Arduino IDE, Xilinx ISE, Keil, LTspice, MobotSim,  ModelSim, Visual Studio, Android Studio, Gazebo simulator, GymFC, Autodesk Inventor,   Creo Parametric, Virtual box(Linux/Ubuntu), Microsoft Word, PowerPoint, Excel  **• Electronics Boards**  ESP32 MCU, Spartan 3 SoC FPGA, Arduino Due, and Arduino Mega, Uno, Nano  **• Sensors/ Actuators etc**  6-axis IMU; quadrature encoder; GPS, ultrasonic, IR, barometer, temperature  sensors; 3S 12V 25A BMS; Radio transceiver; servo, stepper, DC, brushless motors  **• Practical Work**  PCB Designing, Veroboard usage/Soldering, Metalworks (lathe Machine, Wielding, etc.), Wood Works  **• Web Development** React, CSS, Tailwind CSS, HTML, JavaScript  **• Media**  Graphics Designing; Animation; Video, Photo, and Voice Editing  **• Soft Skills** Quick Learning Ability, self-management, adaptability, responsibility, time-  management, teamwork, leadership  **• Other**  Blog writing, Thoughts illustration, MS Office | | | | | | | | | | |
| **Leadership/**  **Volunteer Experience** | • Head Design Team at PIEAS Literary Society  • Head Videography at charity organization Muaawin  • Co-director Videography PIEAS Media Club  • Inquiry Team Member at charity organization Muaawin-e-rozgaar  • Head videography at IEEE’s ISYWSC event  • Head videography PIEAS National Olympiad  • Organizing member at International Workshop on   2D and Quantum Effect Devices | | | | | | | | *Jan 2021 – May 2021*  *Jan 2021 – Jun 2021*  *Nov 2020 – Apr 2021*  *Dec 2020 – July 2021*  *Nov 2021 – Dec 2021*  *Dec 2021 – Jan 2022*  *Nov 2018 – Nov 2018* | | |
| **Courses** | **•** TensorFlow 2.0 Complete Course – Python Neural Networks  • Python full Course for Beginners  • C++ full Course for Beginners  • Reinforcement Learning Using Python  • React full course for beginners  • Tailwind CSS Tutorials  • CSS Complete Course - Zero to Hero  • HTML Full Course - Build a Website Tutorial  • Java Programming  • Android Development Tutorial  • Gazebo Simulator Course  • Neural networks  • 9 Axis Inertial Measurement Units with Arduino  • PID Control systems with Arduino  • Remote Delivery  • Cyber Security for Service Work  • PrePosition Competence for Maintenance Service  • 5G Stand Alone Cloud Core Network  • Evolved Packet Core (EPC Cloud Core Netork)  • Telecom Cloud  • 5G Nodes: Unified Data Management (UDM)and Unified Policy Control Function (UPCF)  • Graphics Designing - Adobe Illustrator Complete Course  • Graphic Design Theory Classes  • Video-editing - Adobe Premiere Pro CC Full Course  • Audio-editing- Adobe Audition  • Photo-editing - Photoshop full course  • Photoshop Advanced Tutorials  • Mastering Logo Design in Adobe Illustrator | | | | | | | | | *freecodecamp.org freecodecamp.org freecodecamp.org Edureka CodeWithHarry* CodeWithHarry *freecodecamp.org freecodecamp.org Great Learning Academy CodeWithHarry Robotogeddon 3Blue1Brown Paul McWhorter Paul McWhorter Huawei’s iLearning Huawei’s iLearning Huawei’s iLearning Huawei’s iLearning Huawei’s iLearning Huawei’s iLearning Huawei’s iLearning GFXMentor GFXMentor GFXMentor GFXMentor GFXMentor GFXMentor GFXMentor* | |
| **Languages** | • Urdu | • English | | | • Pushto | • Punjabi | | | | | • Hindi |
| **References** | **• Dr. Haroon-ur-Rashid**  Director Academics,   Professor, PIEAS  [haroon@pieas.edu.pk](mailto:haroon@pieas.edu.pk) | | | **• Dr. Panu Ruotsalainen**  Senior Lecturer  University of Jyväskylä  [panu.ruotsalainen@jyu.fi](mailto:panu.ruotsalainen@jyu.fi) | | | **• Dr Muhammad Abid**  Professor, PIEAS  [*mabid@pieas.edu.pk*](mailto:mabid@pieas.edu.pk) | | | | |