Muhammad Ali

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Attachments
- **Self-introduction video** https://bit.ly/4eoD8nC
- **Portfolio** https://mmali.netlify.app/
- **Supporting documents** https://bit.ly/3TqzoK4

Education
- **Erasmus Mundus Joint Master Degree in Microelectronics, Photonics and Radiation effects on them (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
  - Specialization: Microelectronics   ▪ Aug-2023 - Sep-2025

- **B.S. Electrical and Electronics Engineering**
  - Pakistan Institute of Engineering and Applied Sciences (PIEAS)
  - Specialization: Electronics.   ▪ Sep 2018 - June 2022
  - Graduation with 2nd distinction   ▪ CGPA: 3.74 / 4.00

Professional Experience

1. **Transfer of expertise: 3D SRAM Macro Design in 3D Nanofabric Process Technology**
   - i. **imec, Leuven, Belgium**
     Date: Jun-2024 – Aug-2024
   - ii. **LIRMM, Montpellier, France**
     Date: Oct-2024 – Jan-2025
   - **Objective:** Learn at IMEC and assist incoming PhD student at LIRMM

2. **CERN, Switzerland**
   - Date: Dec 2024
   - Radiation effects on electronic devices.

3. **Cloud Core Network Engineer at Huawei, OEC tower, Islamabad**
   - Date: Aug-2022 – Jul-2023
   - **Group Leader:** Nov-2022 – Jun-2023

4. **Robotics Engineer at National Institute of Electronics, Sector H-9, Islamabad**
   - Date: Aug – Sep-2021
   - Made **two-wheel self-balancing robot**

5. **Vice-president IEEE Robotics PIEAS Student Branch**
   - Date: Sep-2021 – May-2022
   - Responsibilities: Organizing seminars and workshops on Robotics

Research/ Projects
- FPGA-based TCP Firewall on Zynq and MicroBlaze with Mailbox and BRAM communication, and DDR Storage — https://bit.ly/46CVrTf
- FPGA-based pong game (VHDL and C (microblaze)) — https://bit.ly/4fBHM1Y
- Implementation of deep learning control for a Quadcopter — youtu.be/aDtnSoSor4E
- 3D orientation virtualization using Accelerometer and Gyroscope — https://bit.ly/499Y3IV

- SAR ADC (2024) — *https://bit.ly/3yoqW71*
- Industrial digital testing of IC (universal shift register) on Verigy V93K ATE — *https://bit.ly/40csGeO*
- Maze Solver Robot — *youtu.be/NtWT8aEdATg*
- Line follower robot — *https://bit.ly/47u4xlu*
- Image sensor characterization/measurements, and defect assessment — *https://bit.ly/4dz2lv1*
- Color Filter Array (CFA) reconstruction, and Spatial Filtering — *https://bit.ly/3LXwMzp*
- Controlling Servo from Web browser wirelessly using ESP32 — *https://bit.ly/3AkcgDW*
- Controlling Servo using Potentiometer and ESP32 — *https://bit.ly/3bRPzNX*
- 15,000 mAh Laptop Power Bank — *youtu.be/zX1eYh3Lx2A*
- Android P2P messaging App — *youtu.be/wOFHmuyRXFY*
- TID effects on Flash Memory — *https://bit.ly/4fCcrx0*
- Trained Reinforcement Learning agent for autonomous driving — *https://bit.ly/3XK0TRA*
- Reinforcement Learning for Atari Breakout Game — *https://bit.ly/4gp5IXw*
- Trained Neural Network for Image prediction — *https://bit.ly/3lek8P8*
- Training CartPole to balance itself — *https://bit.ly/4dU5NRv*
- Tic-tac-toe game using a C++ — *https://bit.ly/3TvCmx3*
- Detection of cracks in Ceramic Tiles using Digital Image Processing — *https://bit.ly/3B5lC9p*
- Designed a 1kVA UPS powered by a single-phase 220V/50Hz AC. — https://bit.ly/3XKDAXu
- Designed 8-bit SAR ADC (2021) — *https://bit.ly/4gtEL5h*
- Designed and implemented a stepper motor controller for a 3D printer — *https://bit.ly/3XICQlJ*
- 35% Duty Cycle Rectangular Waveform using Astable Multivibrator (555 Timer) — *https://bit.ly/47gdP28*
- Temperature Measurement and Calibration using PT100 — *https://bit.ly/49agJYm*
- RIAA Amplifier — *https://bit.ly/3SFCOsg*
- Parallelization in Distributed Memory Machines — *https://bit.ly/3SBFkzZ*
- Parallelization in Shared memory Machines — *https://bit.ly/47VVrga*
- Elemental and Depth Profiling in multilayer thin films using Time of Flight - Elastic Recoil Detection Analysis (ToF-ERDA) — *http://bit.ly/3OovPl2*
- Nanoscale Analysis of multilayer thin films using Helium Ion Microscopy (HIM) — *http://bit.ly/3OovPl2*
- Designed a filter — *https://bit.ly/4d5papE*
  - 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)

Industrial Visits	
IMEC (R&D nanoelectronics, and digital technologies)	
Leuven, Belgium	09-04-2024	Desc: *https://bit.ly/3SGHPAs*

- **IMEC (R&D nanoelectronics, and digital technologies)**
  - Leuven, Belgium   09-04-2024   Desc: *https://bit.ly/3SGHPAs*
- **Okmetic (Silicon Wafer manufacture)**
  - Vantaa, Finland   04-10-2023   Desc: *https://bit.ly/3SkADZV*
- **Viasala Oyj (Sensors for space exploration, environmental and industrial measurement)**
  - Vantaa, Finland   04-10-2023   Desc: *https://bit.ly/4btTafg*
- **VTT Mikes (Metrology Research Center and Laboratory of Finland)**
  - Espoo, Finland   21-11-2023   Desc: *https://bit.ly/3Um4bsN*

- **B-PHOT, VUB (Brussels Photonics Institute, Vrije Universiteit Brussel)**
  - ▪ Brussels, Belgium ▪ 24-01-2024 ▪ Desc: *https://bit.ly/42jOpk4*

Awards	• European Erasmus Mundus Scholarship (2023-2025) • Bachelor's graduation with 2nd distinction (2022) • 2nd place in Huawei's Global Service Center Skill Contest for Cloud Core (2022) • 2nd place in intra-university maze-solver robotics competition (2019) • 2nd place in intra-university line-follower robotics competition (2019) • PKR 15,000 for 2nd position in 2nd semester (2019) • Huawei's Medals: ▪ Master Examinee ▪ Searcher ▪ Perseverer ▪ Diligent Learner

Leadership/ Volunteer	• Head videography at IEEE's ISYWSC event	*Oct 2021 – Dec 2021*
	• Head Design Team at PIEAS Literary Society	*Jan 2021 – May 2021*
	• Head Videography at charity organization Muaawin	*Jan 2021 – Jun 2021*
	• Co-director Videography PIEAS Media Club	*Nov 2020 – Apr 2021*
	• Inquiry Team Member at charity organization Muaawin Rozgaar	*Dec 2020 – July 2021*
	• Head videography PIEAS National Olympiad	*Dec 2021 – Jan 2022*
	• Organizing member at International Workshop on 2D and Quantum Effect Devices	*Nov 2018 – Nov 2018*

Languages	• English •French (Beginner) • Urdu • Pushto • Punjabi • Hindi

References	**Dr. Dawit Abdi**
	Senior Researcher
	imec, Leuven, Belgium
	dawit.abdi@imec.be
		• **Dr. Panu Ruotsalainen**
		  Senior Lecturer
		  University of Jyväskylä
		  panu.ruotsalainen@jyu.fi
			• **Dr. Haroon Rashid**
			  Director Academics,
			  Professor, PIEAS
			  haroon@pieas.edu.pk