Arslan Dawood Butt

Curriculum Vitæ

Personal Details

Position	Tenured Associate Professor and Head of Engineering section
Affiliation	Department of Electrical Engineering and Technology, Government College University Faisalabad
Permanent Address	Liaqut Town 72 C, near ABC road Faisalabad 38000, Pakistan
Mob. no.	+92.300.7969.707
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PEC. no.	ELECT/58276

Work Experience

Tenured Associate Professor

August 2025 – present

Department of Electrical Engineering and Technology, *GC University of Faisalabad*, Faisalabad, Pakistan.

Work description: "*To perform administrative activities, teach undergraduate/postgraduate students, and perform research activities alongside its commercialization*"

- **Successfully supervised PhD thesis student** on the topic of *Energy efficiency enhancement of canal top photovoltaic module using active water-based cooling techniques*

Assistant Professor (TTS)

May 2017 – August 2025

Department of Electrical Engineering and Technology, *GC University of Faisalabad*, Faisalabad, Pakistan.

Work description: "*To perform administrative activities, teach undergraduate/postgraduate students, and perform research activities alongside its commercialization*"

- **Won** 1st runner up position and 1 Million PKR prize as GCUF team member as participants of K-Electric EPIC competition 2025 to find a solution to Karachi demand forecasting problems.
- **Filed multiple patents** on the development of electronic and electro-mechanical instrumentation in collaboration with the Department of Chemistry, GCUF. Won Incubation space at BIC, GCUF for commercialization of research work in the form of businesses titled **Precision Electronic Technologies** and **Precision R&D Consultants**.Provided **Consultancy services** to 8.2 Renewable Energy Experts Pakistan for canal-site solarization feasibility study.
- Currently **Head, Engineering section** with further administrative experience as both Convener and member of various departmental committees associated with management of **Departmental Quality Enhancement**, **Post Graduate Research Committee**, **Lab Affairs**, **Program Accreditation documentation**, **Outcome Based Education (OBE) related Policy development and implementation**, Final Year Projects, Industrial Liaison, Entry Test conduction, Departmental Admissions etc.
- Supervised 3 MS students and currently supervising 4 PhD students. Co-supervised 6 MS theses prior to the initiation of the MS/PhD program in the department.

- ▷ PI of HEC's SRGP grant no. 21-1784/SRGP/RD/HEC/2017 worth PKR 448190 associated with **Augmented Reality** application.
- ▷ Managed research activities in the field of **Renewable Energy Efficiency**, Front end electronics and RF Antennas.
- ▷ Taught courses of Linear Circuit Analysis, Power Electronics, Electronic Circuit Design, Electrical Network Analysis, Advanced Power Electronics, and Research Methodology to UG and PG students.

Post-doctoral fellow

Feb 2016 – Apr 2017 **Dipartimento di Elettronica, Informazione e Bioingegneria**, *Politecnico di Milano*, Milan, Italy.
Work description: "*Development of solid state radiation detectors and their experimental characterization.*"

- ▷ Worked primarily on **detector development** for **X-ray** spectroscopy applications like Siddharta-II, Ardesia and MOX projects alongside **Gamma-ray** spectroscopy application in FLARES project (see Project Work).
- ▷ As an **electronic systems engineer** handling multiple local and **international collaboration** projects, I worked in **teams** composed of several Grad students, researchers and technicians.

Ph.D Thesis Student

Jan 2013 – Feb 2016 **Dipartimento di Elettronica, Informazione e Bioingegneria**, *Politecnico di Milano*, Milan, Italy.
PhD Dissertation title: "Silicon Drift Detector Arrays for X- and Gamma-Ray Detection Applications."

- ▷ Worked on prototyping, design and initial characterization and data processing of detection systems for ESA, Siddharta-II, Ardesia and INSERT projects (see Project Work).

Masters thesis student

Sep 2011 – Dec 2012 **Dipartimento di Elettronica, Informazione e Bioingegneria**, *Politecnico di Milano*, Milan, Italy.
Masters Thesis title: "Study and development of a cooling system for a $LaBr_3$-based prototype of gamma-ray spectrometer for space exploration."

- ▷ Worked on study and development of a thermally stabilizing mechanism for the a prototype gamma ray detection system to enable its experimental characterization under European Space Agency's technology research program.

Education

2013–2016 **Ph.D : Electronics Engineering**, *Politecnico di Milano*, Milan, Italy, *with Merit*.

2010–2012 **M.Sc : Electronics Engineering**, *Politecnico di Milano*, Milan, Italy, *Score : 110/110*.

2006–2010 **B.Sc : Electrical Engineering**, *College of Electrical and Mechanical engineering, NUST*, Rawalpindi, Pakistan, *GPA : 3.87/4.00*.

2004–2006 **F.Sc : Pre-Engineering**, *Divisional Model College*, Faisalabad, Pakistan, *Score : 952/1100*.

2004 **Matric: Science**, *Divisional Public School*, Faisalabad, Pakistan, *Score : 701/850*.

Project Work (2013 - present)

Founder and Proprietor of Precision Electronic Technologies

Founder of Precision Electronic Technologies, a Faculty startup incubated in Business Incubation Center, GCUF. products include Precision Electrochemical Workstations for Voltametery/ Amperometry studies in the field of electrochemical analysis.

HEC Grant 21- 1784 SRGP/R&D/HEC/2017

*"Study and Development of a low latency quaternion-based gesture recognition, communication and 3D rendering protocol system for **augmented reality applications**"*

- ▷ Managed research activities of the grant worth PKR 4,48,190/- as Principal Investigator (PI).

SIDDHARTA-II Experiment:

"Siddharta experiment is aimed at study of strong nuclear interaction by performing X-ray spectroscopy of exotic Kaonic atoms using SDD arrays"

- ▷ Performed design, development and initial characterization of prototype and final Siddharta SDD modules using "SFERA" readout ASIC and National Instruments DAQ.
- ▷ Oversaw detector assembly, mounting and bonding by technician. I also developed methods and 3D printed tools to maximize yield of assembled detector modules.
- ▷ Participated in measurements at PSI facility, **Switzerland** with PiM1 beamline (100-500 MeV/c) to characterize spill on background in SDD arrays in September, 2015.
- ▷ Participated in successful X-ray detector commissioning and Kaon beam tuning experiment at J-PARC Hadron facility, **Japan** in June, 2016.

ARDESIA Project:

- ▷ Worked on the design and development of SDD arrays, readout electronics' boards, cooling system and vacuum compatible mechanics and enclosure of the final instrument for Synchrotron XRF and XAFS applications.

MOX Project:

- ▷ Worked on development and characterization of X-ray detection system composed of commercial CdTe detectors readout by a DPP to evaluate isotope concentrations within samples containing high Z elements with closely spaced K-alpha peaks.

FLARES project:

- ▷ Responsible for design, development and characterization of mechanics and electronic readout board for a proof of principle experiment with a cryogenic-ally cooled $CdWO_4$ scintillator coupled to SDD array to perform Gamma-ray spectroscopy for rare events searches like neutrino-less double beta decay.

ESA project:

- ▷ Successfully concluded the technical development of prototype gamma cameras based on large (1" and 2") $LaBr_3$:Ce scintillators readout by arrays of SDDs alongside characterization of their spectroscopy and position sensitivity performance for space exploration and nuclear physics research.

INSERT project:

- ▷ Performed comparative study of SiPM and SDD based solutions from a mechanics/thermal management perspective for the development of an integrated SPECT/MRI system in INSERT medical imaging project.
- ▷ Contributed in the development and testing of MRI compatible cooling block solutions for INSERT project.

Conferences/workshops/Seminars

- ▷ Invited Speaker at ICESM Conference held at GCUF in 2024 and 2025.
- ▷ Oral presentations at 5th, 6th and 7th AIMC held at Malaysia in 2021, 2022 and 2023.
- ▷ Oral presentations at ICAETA-2021 held at Istanbul, Turkey on 09-10 July 2021
- ▷ Oral presentation at ECRES2020 held at Istanbul, Turkey on 24-25 August 2020.
- ▷ Presented one poster at NSS/MIC 2016 held in Strasbourg, France.
- ▷ Presented two posters at NSS/MIC 2015 held in San Diego, CA USA.
- ▷ Poster presentations at NSS/MIC 2014 held in Seattle, WA USA.

List of Publications

Please find attached.

Languages

Urdu **Mother tongue**

English **Fluent** in understanding, writing and speaking

Italian **Fluent** in understanding, **Sufficient** in writing and speaking

References

- **Engr. Prof. Dr. Abdul Rauf Bhatti**, *Dean, Faculty of Engineering and Technology, Government College University Faisalabad, Faisalabad, Pakistan*, (+92) 41 9203009, bhatti_abdulrauf@gcuf.edu.pk.
- **Prof. Carlo Fiorini**, *DEIB, Politecnico di Milano, Milan, Italy*, (+39) 02 2399 3733, carlo.fiorini@polimi.it.
- **PD Dr. Johann Zmeskal**, *Stefan Meyer Institute for Subatomic Physics, Austrian Academy of Sciences, Vienna, Austria*, (+43) 1 4277 29701, johann.zmeskal@oeaw.ac.at.

Arslan Dawood Butt

8th October 2025

List of peer reviewed Journal Publications

[1] M Kousar, S Rehman, and **AD Butt**. "Electrochemical evaluation of thermo-mechanically stable Graphene functionalized polyacrylamide hydrogels for efficient energy storage systems". In: *Materials Today Chemistry* Vol. 49, (2025). [**IF: 6.7**], p. 103066. ISSN: 2468-5194. DOI: 10.1016/j.mtchem.2025.103066. URL: https://www.sciencedirect.com/science/article/pii/S2468519425005567.

[2] N Safdar, **AD Butt***, et al. "Canal site photovoltaic: Performance analysis using experimentally characterized microclimate prediction, and optimized PV thermo-electric models for hot semi-arid climate". In: *Journal of Renewable and Sustainable Energy* Vol. 17,No. 1, (Jan. 2025). [**IF: 1.9**], p. 013702. ISSN: 1941-7012. DOI: 10.1063/5.0238479.

[3] U Nasim, AR Bhatti, M Farhan, O Zeb, **AD Butt**, et al. "An improved barrier function double integral sliding mode control of SynRM for hybrid energy storage system-based electric vehicle". In: *Journal of Energy Storage* Vol. 104, (2024). [**IF: 8.9**], p. 114401. ISSN: 2352-152X. DOI: 10.1016/j.est.2024.114401.

[4] W Tahir, M Farhan, AR Bhatti, **AD Butt**, et al. "A modified control strategy for seamless switching of virtual synchronous generator-based inverter using frequency, phase, and voltage regulation". In: *International Journal of Electrical Power & Energy Systems* Vol. 157, (2024). [**IF: 5.0**], p. 109805. ISSN: 0142-0615. DOI: 10.1016/j.ijepes.2024.109805.

[5] **AD Butt** et al. "Substrate integrated waveguide-based self-triplexing antenna-sensor". In: *AEU - International Journal of Electronics and Communications* Vol. 179, (2024). [**IF: 3.2**], p. 155321. ISSN: 1434-8411. DOI: 10.1016/j.aeue.2024.155321.

[6] **AD Butt** et al. "Single-fed broadband CPW-fed circularly polarized implantable antenna for sensing medical applications". In: *PLOS ONE* Vol. 18,No. 4, (Apr. 2023). [**IF: 3.752**], pp. 1–20. DOI: 10.1371/journal.pone.0280042.

[7] A Siddique, AR Bhatti, **AD Butt**, et al. "A hardware-friendly motion estimation algorithm for the HEVC standard in the context of low-delay video coding". In: *Multimedia Tools and Applications* Vol. 82,No. 11, (2023). [**IF: 2.577**], pp. 16519–16532. DOI: 10.1007/s11042-022-14178-z.

[8] S Saleem, M Farhan, S Raza, FG Awan, **AD Butt**, et al. "Power Factor Improvement and MPPT of the Grid-Connected Solar Photovoltaic System Using Nonlinear Integral Backstepping Controller". In: *Arabian Journal for Science and Engineering* Vol. 48,No. 5, (2023). [**IF: 2.807**], pp. 6453–6470. DOI: 10.1007/s13369-022-07416-x.

[9] U Nasim, AR Bhatti, M Farhan, A Rasool, and **AD Butt**. "Finite-time robust speed control of synchronous reluctance motor using disturbance rejection sliding mode control with advanced reaching law". In: *PLOS ONE* Vol. 18,No. 9, (Sept. 2023). [**IF: 3.7**], pp. 1–23. DOI: 10.1371/journal.pone.0291042.

[10] SA Babale, SKA Rahim, KG Tan, KN Paracha, **AD Butt**, et al. "PET-Based Instant Inkjet-Printed 4× 4 Butler Matrix Beamforming Network". In: *The Applied Computational Electromagnetics Society Journal (ACES)* Vol. 37,No. 2, (2022). [**IF: 0.414**], pp. 199–208. DOI: 10.13052/2022.ACES.J.370208.

[11] T Hashimoto, S Aikawa, T Akaishi, H Asano, M Bazzi, D Bennett, M Berger, D Bosnar, **AD Butt**, et al. "Measurements of Strong-Interaction Effects in Kaonic-Helium Isotopes at Sub-eV Precision with X-Ray Microcalorimeters". In: *Physical review letters* Vol. 128,No. 11, (2022). [**IF: 9.161**], p. 112503. DOI: 10.1103/PhysRevLett.128.112503.

[12] MN Iqbal, AR Bhatti, **AD Butt**, et al. "Solution of Economic Dispatch Problem Using Hybrid Multi-Verse Optimizer". In: *Electric Power Systems Research* Vol. 208, (2022). [**IF: 3.414**], p. 107912. DOI: 10.1016/j.epsr.2022.107912.

[13] YA Sheikh, KN Paracha, S Ahmad, AR Bhatti, **AD Butt***, et al. "Analysis of Compact Dual-Band Metamaterial-Based Patch Antenna Design for Wearable Application". In: *Arabian Journal for Science and Engineering* Vol. 47,No. 3, (2022). [**IF: 2.334**], pp. 3509–3518. DOI: 10.1007/s13369-021-06365-1.

[14] M Tamoor, S Habib, AR Bhatti, **AD Butt**, et al. "Designing and Energy Estimation of Photovoltaic Energy Generation System and Prediction of Plant Performance with the Variation of Tilt Angle and Interrow Spacing". In: *Sustainability* Vol. 14,No. 2, (2022). [**IF: 3.251**]. DOI: 10.3390/su14020627.

[15] S Ahmad, KN Paracha, YA Sheikh, A Ghaffar, **AD Butt**, et al. "A Metasurface-Based Single-Layered Compact AMC-Backed Dual-Band Antenna for Off-Body IoT Devices". In: *IEEE Access* Vol. 9, (2021). [**IF: 3.367**], pp. 159598–159615. DOI: 10.1109/ACCESS.2021.3130425.

[16] YA Sheikh, MU Maqbool, **AD Butt***, et al. "Impact of rooftop photovoltaic on energy demand of a building in a hot semi-arid climate". In: *Journal of Renewable and Sustainable Energy* Vol. 13,No. 6, (2021). [**IF: 2.219**], p. 065101. DOI: 10.1063/5.0063044.

[17] A Siddique, AR Bhatti, AB Awan, **AD Butt***, et al. "Efficient video transmission-a critical review of various protocols and strategies". In: *Journal of the Chinese Institute of Engineers* Vol. 44,No. 8, (2021), pp. 740–750. DOI: 10.1080/02533839.2021.1977713.

[18] AR Bhatti, **AD Butt***, et al. "Comparative Analysis of Proposed Photovoltaic-Grid and Grid-Only Systems for Uninterrupted Charging of Plug-in Electric Vehicles". In: *Technology and Economics of Smart Grids and Sustainable Energy* Vol. 6,No. 1, (2021), p. 7. ISSN: 2199-4706. DOI: 10.1007/s40866-021-00105-y.

[19] Y Sheikh, **AD Butt***, et al. "An improved cooling system design to enhance energy efficiency of floating photovoltaic systems". In: *Journal of Renewable and Sustainable Energy* Vol. 12,No. 5, (2020). [**IF: 1.575**], p. 053502. ISSN: 1941-7012. DOI: 10.1063/5.0014181.

[20] KN Paracha, **AD Butt***, et al. "Liquid Metal Antennas: Materials, Fabrication and Applications". In: *Sensors* Vol. 20,No. 1, (Jan. 2020). [**IF: 3.251**], p. 177. ISSN: 1424-8220. DOI: 10.3390/s20010177.

[21] M Zubair, A Bilal Awan, S Ghuffar, **AD Butt**, et al. "Analysis and Selection Criteria of Lakes and Dams of Pakistan for Floating Photovoltaic Capabilities". In: *Journal of Solar Energy Engineering* Vol. 142,No. 3, (June 2020). [**IF: 1.641**], p. 031001. ISSN: 0199-6231. DOI: 10.1115/1.4045352.

[22] A Razzaq, M Murad, R Talib, **AD Butt**, et al. "Use of Blockchain in Governance: A Systematic Literature Review". In: *International Journal of Advanced Computer Science and Applications* Vol. 10,No. 5, (2019). [MJL]. ISSN: 2158-107X. DOI: 10.14569/IJACSA.2019.0100585.

[23] S Yaqoob, MM Khan, R Talib, **AD Butt**, et al. "Use of Blockchain in Healthcare: A Systematic Literature Review". In: *International Journal of Advanced Computer Science and Applications* Vol. 10,No. 5, (2019). [MJL]. ISSN: 2158-107X. DOI: 10.14569/IJACSA.2019.0100581.

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[25] G Bellotti, **AD Butt**, et al. "The ARDESIA Detection Module: a 4-Channel Array of SDDs for Mcps X-Ray Spectroscopy in Synchrotron Radiation Applications". In: *IEEE Transactions on Nuclear Science* Vol. 65,No. 7, (2018). [**IF: 1.44**], pp. 1355–1364. ISSN: 1558-1578. DOI: 10.1109/TNS.2018.2838673.

[26] U Ijaz, **AD Butt***, et al. "A low latency quaternion-based web transmission system for augmented reality applications". In: *NUST Journal of Engineering Sciences* Vol. 11,No. 2, (2018). [**HEC: X-category**]. ISSN: 2070-9900. DOI: 10.24949%2Fnjes.v11i2.405.

[27] C Curceanu, A Amirkhani, M Bazzi, G Bellotti, C Berucci, D Bosnar, A Bragadireanu, M Cargnelli, **AD Butt**, et al. "Low-energy kaon-nuclei interaction studies at DAΦNE : Siddharta-2 and amadeus". In: Acta Physica Polonica B Vol. 48,No. 10, (Oct. 2017). [**IF: 0.875**], pp. 1855 –1860. ISSN: 0587-4254. DOI: 10.5506/APhysPolB.48.1855.

[28] R Quaglia, F Schembari, G Bellotti, **AD Butt**, et al. "Development of arrays of Silicon Drift Detectors and readout ASIC for the SIDDHARTA experiment". In: *Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment* Vol. 824, (2016). [**IF: 1.362**], pp. 449 –451. ISSN: 0168-9002. DOI: 10.1016/j.nima.2015.08.079.

[29] M Bazzi, G Beer, G Bellotti, C Berucci, A Bragadireanu, D Bosnar, M Cargnelli, C Curceanu, **AD Butt**, et al. "K-series X-ray yield measurement of kaonic hydrogen atoms in a gaseous target". In: *Nuclear Physics A* Vol. 954, (2016). [**IF: 1.916**], pp. 7 –16. ISSN: 0375-9474. DOI: 10.1016/j.nuclphysa.2016.03.047.

[30] **AD Butt** et al. "Development of a Detector for Gamma-Ray Spectroscopy Based on Silicon Drift Detector Arrays and 2"×2" Lanthanum Bromide Scintillator". In: *IEEE Transactions on Nuclear Science* Vol. 62,No. 5, (2015). [**IF: 1.198**], pp. 2334 –2342. ISSN: 1558-1578. DOI: 10.1109/TNS.2015.2464676.

[31] R Quaglia, C Fiorini, L Bombelli, **AD Butt**, et al. "Monolithic arrays of SDDs and low noise CMOS readout for X-ray spectroscopy measurements in nuclear physics experiments". In: *Journal of Instrumentation* Vol. 10,No. 03, (2015). [**IF: 1.31**], p. C03001. ISSN: 1748-0221. DOI: 10.1088/1748-0221/10/03/c03001.

[32] P Busca, **AD Butt**, et al. "Development of a detector based on Silicon Drift Detectors for gamma-ray spectroscopy and imaging applications". In: *Journal of Instrumentation* Vol. 9,No. 05, (2014). [**IF: 1.399**], p. C05005. ISSN: 1748-0221. DOI: 10.1088/1748-0221/9/05/c05005.

[33] P Busca, C Fiorini, **AD Butt**, et al. "Simulation of the expected performance of INSERT: A new multi-modality SPECT/MRI system for preclinical and clinical imaging". In: *Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment* Vol. 734, (2014). [**IF: 1.216**], pp. 141 –146. ISSN: 0168-9002. DOI: 10.1016/j.nima.2013.08.064.

[34] IA Randhawa, U Ijaz, A Ijaz, **AD Butt**, et al. "Efficient Energy Solution For Wasa Faisalabad Taking Into Consideration The Environmental Impact Assessment". In: *Earth Sciences Pakistan (ESP)* Vol. 3,No. 2, (2019), pp. 09–13. ISSN: 2521-2893. DOI: 10.26480/esp.02.2019.09.13.

[35] M Occhipinti, M Carminati, P Busca, **AD Butt**, et al. "Characterization of the Detection Module of the INSERT SPECT/MRI Clinical System". In: *IEEE Transactions on Radiation and Plasma Medical Sciences* Vol. 2,No. 6, (2018). [MJL], pp. 554–563. ISSN: 2469-7303. DOI: 10.1109/TRPMS.2018.2864792.

A full list of publications including non peer-reviewed works is available at:
https://scholar.google.com/citations?user=cCcF2dYAAAAJ