

Peshawar Campus



Director

Dr Omar Usman Khan

Professor

PhD (CCE), Politecnico Di Torino, Italy (2013)

PhD Approved Supervisor

MS (CSE), GIKI, Topi (2008)

MS (DS), Brunel University, UK (2005)

BS (CS & SE), Greenwich University, UK (2002)

The Peshawar campus is located in the vicinity of Hayatabad; a modern residential suburb of Peshawar. Spread over an area of 4 acres, the campus houses an academic and administrative block; constructed in the university's signature red brick architectural style, and a hostel for boys. It offers a conducive environment with green lawns, flora, plantations, and water fountains. The campus is conveniently close to multiple hospitals, markets, residential areas, sports complexes, government offices, and food streets. With multiple routes, transportation via the city's Metro BRT is quite convenient and economical and can be accessed through the university's own metro BRT bus stop.

To add value to the student learning process and academic excellence, the university has state of the art infrastructure and academic resources, along with highly qualified and committed faculty. The faculty are up-to-date with both scientific and technological progresses, industry requirements, and global trends in their respective fields. With one of the best student to faculty ratios, students have more exposure to learning and working closely with them. The campus has state of the art computing, engineering, and computer assisted language/communications labs. High speed network access to all devices is made available through campus-wide

wireless access points. There is a provision of GPU and big-data enabled high performance computing facilities for its research students. There are separate labs for students of all levels who require them to work on their projects and research thesis. The campus also offers co-working spaces and pre-incubation environment to selected students. The campus library has a collection of over 15,000 unique books, and hundreds of printed research journals. Subscription to research journals of IEEE, Springer, Science Direct, and ACM, are made and these can be accessed from student homes through VPN. All classrooms, labs, and halls are fully air-conditioned. For class-room learning, all rooms are equipped with audio/video facilities.

The campus highly encourages its students to get affiliated with various societies of the campus. Students are offered membership of local and regional chapters of the ACM, IEEE, and Microsoft. Technical societies deal with activities related to programming and engineering competitions, whereas social societies include activities associated to travel and hiking, indoor and outdoor sports, E-gaming, religious events, debating and fine arts, music, and other philanthropic activities.

Among the programs offered by the campus, the Bachelor of Science

(Electrical Engineering) has the distinction of being one of the first in Khyber Pakhtunkhwa to have received Outcome Based Level II accreditation status by the Pakistan Engineering Council (PEC). Likewise, the various BS computing programs are regularly accredited with the National Computing Education and Accreditation Council (NCEAC). With the input from these accreditation councils, and Industrial Advisory Boards, the curriculum and study plans are highly customized according to the national industrial needs. As such, graduates of the campus are well received by the industry and hold prominent positions in national and multi-national corporations.

Programs offered at Peshawar Campus:

- BS (Artificial Intelligence)
- BS (Computer Science)
- BS (Computer Engineering)
- BS (Electrical Engineering)
- BS (Software Engineering)
- MS (Computer Science)
- MS (Data Science)
- PhD (Computer Science)

Research Groups and Labs

1. Center for Computational Linguistics (COCL)

The group, established in 2018, focusses on developing algorithms for better processing and analyzing natural languages, with a special focus on regional languages like Urdu and Pashto. The work is multi-disciplinary in nature, and builds upon the fields of social linguistics, psycholinguistics, pragmatics, and machine learning. The group has collaborations, research, and data sharing arrangements with the Pashto Academy (University of Peshawar) and Al-Khawarizmi Institute of Computer Science (UET Lahore).

Group Key Activities

1. Arabic: Quran Tajweed based Tilawat Checker
2. Pashto: Automatic Thesaurus Generation, Grammar checker, Spelling checker, Lexicon development
3. Urdu: Poetry Classification, Font Style Transfer
4. Urmuri: Lexicon Development (Agency; Pashto Academy; 0.5 Million)

For more information visit the website link: <http://pwr.nu.edu.pk/CoCL>

Dr. Omar Usman Khan

Professor, CS is the Head of Center for Computational Linguistics (COCL)

2. Decision Support Systems (DSS) Group

The research goals of this group are directed towards understanding and building intelligent models for assisting and supporting decision making in various application areas such as image processing, security, and bioinformatics. The group is actively engaged in utilizing machine learning methods such as rough sets, granular computing, game theory, and three-way decisions, inducing rules for complex decision making. The focus is on three-way decisions,

especially when multiple criterion and multiple agents are involved. The group headed by Dr. Nouman Azam has produced 3 PhD's and several MS students. The group has won the HEC Best research paper award 2016. The current student strength of the group stands at more than 20. The group has received multiple grants from the US Consulate in Peshawar, the Ignite ICT R&D and has research partners in Umm Al-Qura University; Saudi Arabia, University of Regina; Canada, IMSciences; Peshawar, and Qatar University; Qatar.

Currently funded projects include:

1. Three-way Approach for the Prediction of Protein Structure from Images, Funding Agency: FAST; 0.7 Million.
2. Incorporating Evolving Biological Information in Protein Functions Prediction, Funding Agency: HEC; 0.15 Million (2016-2017)
3. Attribute Division using Three-way Decisions for Differential Privacy, Funding Agency: FRSG-FAST; 0.5 Million (2021)
4. Three-way Clustering Approaches for open world Classification, Funding Agency: FRSG-FAST; 0.8 Million (2022)

Dr Nouman Azam

Associate Professor, CS is the Head of Decision Support Systems (DSS) Group

3. Computing Laboratory NU (COLABNU)

The NU computing laboratory, established in 2017 at the campus, is a pre-incubation lab cum office with the aim of elevating the quality of undergraduate and graduate students. Students are enrolled at an early stage of their degree, and depending on their performance and set targets, are allowed to be promoted across tiers as they mature into later stages of their degree. A multi-tier mentoring scheme is

followed in the lab, involving both senior students and faculty. The work environment, and the synergy between colab members, enables students to take charge and work with topics of contemporary importance that would otherwise not be covered in their courses.

Mr Fazl-e-Basit

Assistant Professor, CS is the Head of Computing Laboratory NU (COLABNU)

4. National University Systems and Simulations (NUSYS) Group

The National University Systems and Simulation (NUSYS) group, established in 2016, covers research activities in a diverse set of disciplines ranging from wireless and sensor networks, signal processing, smart grids, speech recognition, scientific computing, computational electromagnetics, and quantum computing. The group has worked on various funded projects of the Higher Education Commission, NATO Science for Peace, and NRTC, along with small grants from the US consulate, and Ignite ICT R&D. The group has former collaborations with Princeton; USA, Waseda University; Japan, Politecnico di Torino; Italy, and University of California; USA.

Projects (completed)

1. Automatic Speech Recognition for Pashto (Agency: NRTC, PKR 2 Million)
2. Design and Analysis of a 400 km Quantum Key Distribution Link (Agency: NATO-SPS, PKR 8 Million)
3. Low-Cost Seismic Monitoring Network (Agency: HEC, PKR 2.8 Million)

For more information visit the website link: <http://pwr.nu.edu.pk/nusys>

Dr. Usman Abbasi

Assistant Professor, EE is the Head of National University Systems and Simulations (NUSYS) Group

5. Robotics & Radar Communication Systems (RRCS)

The research goals of this group are directed towards developing AI based signal processing techniques for Robotics & Radar Systems. The lab aims to provide innovative and cutting edge solutions for MIMO based Radar Systems using advance signal processing and 3-D EM CAD tools, for applications such as path planning, Robotic rescue in hazardous environment, multi Robot exploration etc. The research also focusses on design and development of integrated small and smart antennas for AI based IoT platforms. The group, established in 2023 is headed by Dr. Suleman Mir, and has 4 student members and an RA. Current collaborations of the group are with Sicoya GmbH, Berlin; Germany, Air University, NUST, and University of Porto; Portugal. The group has designed and fabricated fractal antennas, where the design was

conceived at FAST, fabrication in China, and testing in NUST, Islamabad. Key recent publications held by the group are published in Journal of Ambient Intelligence and Humanized Computing (IF: 3.662), and Future Generation Computer Systems (IF: 7.19). Projects held by the group are:

- Target identification using MIMO Radars for Robotic rescue in hazardous environment, Funding Body: FRSG-NUCES; 1.2 Million, (2024-2025)

Dr Suleman Mir

Associate Professor, EE is Head of Robotics & Radar Communication Systems (RRCS)

6. FAST Math Tech Group (FMTG)

FMTG aims to utilize concepts from general relativity and computational mathematics to address a diverse field of challenges in computer science, engineering, and science. Our research endeavors focus on

bridging theoretical frameworks with practical applications, fostering collaborations across disciplines to tackle real-world problems efficiently and effectively. The group aims to deepen understanding of gravitational phenomena, particularly new black holes in different frameworks, through theoretical exploration and observational analysis. As such, ultimately it seeks to uncover fundamental insights into the nature of spacetime and the universe. The group, established 2023 is headed by Dr. Askar Ali, and holds collaborations with Quaid-e Azam University; Islamabad, FAST-NUCES; Lahore, GIKI, and Eastern Mediterranean University, Turkiye.

Dr Askar Ali

Assistant Professor, S&H is Head of FAST Math Tech Group (FMTG)