DIRECTOR

Dr Zulfiqar Ali Memon
Professor
PhD Approved Supervisor
PhD (CS), Vrije Univ, Amsterdam (2010)
MSc (CS), Univ of Sindh, Jamshoro (2000)
BSc (Hons), Univ. of Sindh, Jamshoro (1999)

The Karachi Campus provides state-of-the-art facilities at two campuses. The Campus offers expertise of dynamic and staunch faculty members, a secure and healthy environment, and a variety of extracurricular opportunities for students to embrace their existing potentials. Adequate emphasis has been placed upon espousal of student well – being, which includes provision of quality education and availability of various extracurricular projects. Multiple inter campuses committees, student clubs and societies have been established to encourage the intellectual and social development of students, cumulatively. The Campus, while embolding the entrepreneurial aspirations existing within the students, maintains facilities of Incubation and innovation centre as well. Students are provided with adherent mentoring and support. The esteemed faculty members help the student's nurture their novel research and developmental ideas, substantially. The Main Campus is located on a six-acre site in Shah Latif Town on the National Highway, ten kilometers east of Karachi airport. The Campus has spacious, fully air conditioned classrooms, laboratories, auditorium, seminar rooms, sports room and a modern library. All Engineering Labs for power systems Electronics, Electrical, Control Engineering, Signal Processing, Telecommunications, Networking, and Multimedia are fully equipped. Computing labs feature the latest technology computers and workstations that use Linux and Windows-based environments. The Campus upholds a potential network infrastructure and provides seamless connectivity throughout. The Campus maintains a vibrant Research and Development culture. Faculty members are part of research groups. Research seminars, local IEEE, ACM and IET chapters' meetings and seminars are held on a regular basis. Enhancing the capacity building the campus has formed a centre for professional training where periodically different training and seminars are arranged to embrace, improve and retain existing knowledge and skills of the employees and students, respectively. A separate student facilitation centre with a distinctive library, commodious cafeteria, an extensive auditorium, and indoor sports facilities exists within the campus. The campus also includes Gym with latest equipment playgrounds for Cricket, Hockey, Football, Basketball, Badminton, futsal court, Volleyball. An in house Mosque is also available for the students and employees. The Campus extends efficient and comfortable transport services for students and staff to commute easily from varied locations across the city. An independent Placement and student Affairs office exists at Karachi Campus for facilitates the students in job placements and internships. The office arranges various recruitment related events both on campus and externally. The department provides career and skill development counselling to students, which helps them in effective resume writing, job hunting and personality building. This office even participates in resolving general student concerns and arranging various on campus, student engagement events. The Campus maintains a unique Language Lab to teach students English and other foreign languages while preparing them via video cameras, and round table discussions, for both National and International employability. The City Campus is situated on the main Shahrah-e-Faisal (near Nursery), hosts Postgraduate Studies. The City campus retains air conditioned, contemporary classrooms; high tech computer labs, Seminar Hall and an astounding library, integrated with the Main campus Library. All the facilities and services extended at the Main Campus are equivalently accessible for the students of City Campus as well. In addition to the University sponsored financial assistance and scholarships, Karachi Campus also receives scholarships for position holders from the Boards of Sindh and Baluchistan, Sindh Endowment Board Scholarship (40% urban and 60% rural quota, every year up to 40 scholarships), Baluchistan Endowment Board Scholarship, Memon Welfare Association's HEC-JICA etc. These funding, aid the students from challenged social backgrounds to pursue quality education smoothly, throughout their academic tenure. FAST NUCES Karachi campus while extending eminence provides quality education, a conducive learning environment and a creative learning experience to its students throughout their academic tenure.

Programs Offered at Karachi Main Campus:

Bachelor of Science (Artificial Intelligence)
Bachelor of Science (Business Analytics)
Bachelor of Science (Computer Science)
Bachelor of Science (Cyber Security)
Bachelor of Science (Data Science)
Bachelor of Science (Electrical Engineering)
Bachelor of Science (Financial Technology)
Bachelor of Science (Software Engineering)

Programs Offered at Karachi City Campus:

Master of Science (Artificial Intelligence)
Master of Science (Business Analytics)
Master of Science (Cyber Security)
Master of Science (Computer Science)
Master of Science (Data Science)
Master of Science (Electrical Engineering)
Master of Science (Software Engineering)
Master of Science (Software Project Management)
Doctor of Philosophy (Computer Science)
Doctor of Philosophy (Electrical Engineering)
Doctor of Philosophy (Software Engineering)

1. Distributed Applications Group (DAG)

The group focuses on multidisciplinary research ranging from distributed systems, its applications in crowd sourcing, implementations of distributed applications that supports handi-capped community, building up distributed AI applications in healthcare, developing distributed intelligent human-aware applications that possesses context awareness, Internet of Things based application development, developing Blockchain based interoperable heterogeneous IOT applications etc. The group is also working in developing distributed learning theories and frameworks following the Software Quality Assurance standards to enhance the distributed virtual learning environments. Group's research is fundamental, aimed at harnessing the true potential of distributed crowdsourcing to enhance various phases of software development ranging from requirements engineering till managing bug repositories. The group is application-driven, motivated by important application areas, such as developing distributed applications to utilize the unmanned aerial vehicle (UAV) systems in education and health, developing auditable distributed systems utilizing the state-of-the-art technologies, designing framework for dynamic collaborative swarms etc.

Research areas

1. IOT applications
2. Blockchain based interoperable heterogeneous IOT applications
3. Crowd sourced based distributed applications
4. Human-aware computing
5. Assistive software development
6. Distributed AI applications for healthcare and education
7. Distributed Learning Computing
8. Distributed Requirement Engineering
9. Distributed Dynamic collaborative swarm computing
10. Ambient Assisted Computing

Research Group Members:

1. Dr. Zulfiqar Ali Memon
2. Dr. Fahad Samad
3. Dr. Abdul Aziz
4. Mr. Abdul Rahman

2. Systems Research Laboratory

Focus

The lab is focused on developing efficient and enriched solutions and systems through integration of Artificial Intelligence, Cloud Computing, Big Data, Information Security, Blockchain, and High-Performance Computing, IoT, and Networks

Application Domains

Edtech, Healthtech, Fintech, Climate Change, DeepFakes, and Intrusion Detection

Faculty

1. Dr. Jawwad Ahmed Shamsi (PI)
2. Dr. Muhammad Burhan Khan
3. Dr Anam Qureshi
4. Dr. Shahbaz Akhtar Siddique

Publications

1. Book: Big Data Systems A 360-degree approach, Taylor and Francis
2. Journals: Elsevier JNCA, JPDC, Journal of Grid Computing, IT Professional, IEEE Access, Arabian Journal of Science and Engineering, Security and Communication Networks, Library Hi-Tech, Peer J, Journal of King Saud University.
3. Conferences: IEEE IPDPS, Globecom, IEEE HASE, IEEE LCN, FIT

Grants and Awards

1. AI-based Adaptive Learning solution funded by NCAI
2. AI-based online exam vigilance system, funded by Planning Commission
3. AI-based context-aware event Detection System funded by HEC
4. An Efficient Infrastructure for Large-Scale Communication of IoT devices in a Smart city, funded by HEC
5. NVIDIA Teaching and Research Center, funded by NVIDIA
6. Early Adopter grant for teaching PDC topics funded by IEEE TCPP
7. AWS Cloud startup grant, Amazon
8. Google Cloud Startup grant, Google
9. Blackberry Academic Tier Award
10. P@SHA ICT Award for R&D

Products

iParhai: An AI-based intelligent learning platform which provides adaptive learning

http://www.iParhai.com

ProctorParhai: An AI-based vigilance system for online exams, which detect use of unfair means.

http://www.proctorparhai.com

Eyeconai : An AI-based context-aware event detection system.

http://eyeconai.com

PhDs Produced

1. Dr. Nouman Durrani
2. Dr. Narmeen Bawany
3. Dr. Nausheen Shoaib
4. Dr. Shazia Usmani
5. Dr. Anam Qureshi

For more information visit the website link: http://syslab.ai

3. The Smart Video Surveillance Lab

Centre for Research in Data Science:

The Data Science Research Group at Karachi Campus mainly focuses on Generative AI, deep learning and machine learning techniques for data analysis with main applications in video surveillance applications, writer identification, face recognition, cancer

classification, multi-label classification, social media data analysis and information visualization.

Main Objectives:

- Conducting Research in areas of Data Science, Machine Learning, Computer Vision, Cloud Computing and Internet of Things/ Wireless Sensor Networks
- Development of Efficient and Holistic Surveillance Systems
- Suspicious Activity and Evidence Detection using Smart IoT Systems
- Academic and Industrial Collaboration to share knowledge and help national security interests.

Research Group Members:

1. Dr. Muhammad Atif Tahir
2. Dr Muhammad Rafi
3. Dr Muhammad Nouman Durrani

The Smart Video Surveillance Lab

FAST-NUCES, Karachi Campus has been awarded Rs. 45.0 million from the Planning Commission of Pakistan and HEC to establish a state-of-the-art Smart Video Surveillance Lab as a part of the National Centre for Big Data and Cloud Computing (NCBC), Pakistan. In this regard, the lab is currently working on multiple surveillance-based applications, namely but not limited to: (a) Theft Car Surveillance, (b) Real-Time Weapon and Face Recognition, and (c) Suspicious Activity and Evidence Detection using smart IoT systems and Active Learning, to address the needs of providing security to the citizens of Pakistan.

For more information visit the website link: http://vslkarachi.com

4. Intelligent Systems Group

The Intelligent Systems group is engaged with the research and development on intelligent systems in cross-disciplinary settings. Our focus is intelligent, data driven and behavioral modelling and control of the systems such as robots, electric vehicles, electric power systems, plant health management systems and autonomous multi-agent systems. The group is working to integrate the latest developments in computer science and software engineering into engineering systems. Recently, the group won NRPU Research Grant funded by Higher Education Commission with Dr. Aqsa Aslam as Principal Investigator.

Collaborations

The HEC funded project is being executed in collaboration with City Traffic Police, Karachi for smart traffic management in the city using artificial intelligence-based strategies. A project on Document Management System is currently being developed by the group members in collaboration with Transsion Tecno Electronics.

Group Team Members:

1. Dr. Muhammad Burhan Khan
2. Dr. Aqsa Aslam
3. Dr. Syed Muhammad Atif Saleem
4. Dr. Haider Mehdi
5. Dr. Junaid Rabbani
6. Mr. Haris Mohsin
7. Mr. Muhammad Ahsan Khan Sunny
8. Mr. Quratulain Sohail
9. Mr. Sadaf Ayesha
10. Mr. Maham Ghauri

5. FAST School of Management Research Group

The FAST School of Management Research group commits itself to engaging in research which supports its mission. This means facilitation and provision of support for curriculum design, writing of research papers, and establishment of Center for Research aimed at advancing knowledge, fostering innovation and shaping the future of management practices. Our research group stands at the forefront of cutting-edge research, bridging theory and practice to address the real-world challenges. In addition, the research group strongly associates with solving global, national, and local issues of significance from within the school's preferred paradigm of knowledge.

Research Group Members:

1. Dr. Nazia Nazeer
2. Dr. Muhammad Saad
3. Dr. Sarfaraz Bhutto

Research Areas:

- Economics
- Corporate Finance
- Sustainable Business
- Financial Institutions and Markets

6. Smart Intelligence Lab (SIL)

The Smart Intelligence Research Group has goals to contribute to the state of the art through research, development, and innovation in the scope of information and communication technologies for Internet of Things (IoT) and Next Generation Networks and Applications. The topics of interest are extremely relevant in telecommunications, digital health and intelligent solutions for live stocks. It intends to perform innovative research aiming to explore an increasing available amount of data in a growing connected world. It focuses on developing new technologies, solutions, and approaches exploring data from their generation and knowledge creation, including their storage, treatment, and analysis. Machine learning and data driven solutions with the nexus of IoT devices is going to bring a new wave of innovation in multiple sectors including health care, industrial automation, urban planning and smart cities.

Research Group Members:

1. Dr. Ghufran Ahmed
2. Dr. Rauf Ahmed Shams Malick
3. Mir Murtaza

4. Muhammad Faizan

International Collaborations:

1. Dr Shahid Hussain, Penn State University, USA
2. Dr Mohsin Raza, Edgehill University, UK
3. Dr Adnan Akhunzada, Doha University of Sc. and Tech., Qatar
4. Dr Junaid Shuja, Universiti Teknologi PETRONAS (UTP), Malaysia

Local Collaborations:

1. Dr Muhammad Faisal Khan (Hamdard University, Karachi)
2. Dr Mubashir Khan (NED-UET, Karachi)
3. Dr Saif Rehman (STMU, Islamabad)
4. Dr Tanveer Hussain (VU, Islamabad)

Core Research Areas:

At SI lab, the focus is on multidisciplinary research. Collaboration between disciplines is essential for responding to today's global challenges. The topics of interest are:

1. Livestock
2. Digital Healthcare
3. Internet of Things
4. Wireless Sensor Networks
5. AI/ Machine Learning

7. Natural Language Processing (NLP) Academy

NLP Academy a leading research lab dedicated to advancing the field of text and natural language processing (NLP). At NLP Academy, we are passionate about harnessing the power of language to solve complex problems and drive innovation across various domains. Our interdisciplinary team of experts collaborates on cutting-edge research projects focused on text analytics, emotion analysis, machine translation, semantic analysis, and practical applications of Large Language Models (LLMs). Through collaborative partnerships with academia, industry, and government, we strive to develop state-of-the-art NLP technologies that address real-world challenges and improve human-computer interaction. Some of the worth mentioning projects of the academy are (i) Automatic Multi-Model Classification of Religious Hate Content from Social Media (2) Emotion Mining from Social Media Text (3) Question/Answering on Tabular Data and (4) Multi-label text classification and its application in web. Join us as we explore the endless possibilities of language and shape the future of NLP together.