

Sehar Butt

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RESEARCH INTERESTS

Embedded Systems, Reconfigurable Computing, Computer Architecture,
Applications of Artificial Intelligence

EDUCATION

M.Sc Electrical Engineering (with thesis), **2015**
University of Engineering and Technology Lahore, Pakistan
Grade Percentage 86.69%

B.Sc Electrical Engineering **2008**
University of Engineering and Technology Lahore, Pakistan
Grade Percentage 85.21%
Among top 5% students

HONOURS AWARDS

- World Distinction in Bible Knowledge in O-Levels (Cambridge University England 2001)
- Among the topmost students in college in A-Levels (Cambridge University England 2004)
- Electrical Engineering Merit Scholarship for securing 87.89 % marks (2004)
- Electrical Engineering Merit Scholarship for securing 3rd position (2006)

PROFESSIONAL EXPERIENCE

- **University of Engineering and Technology, Pakistan**
Department of Computer Science and Engineering
Lecturer **Summer 2009 – Present**
Signals and Systems, Digital Systems, Circuit Analysis

Teaching Associate **Summer 2009 – 2012**
Digital Systems, Digital Logic Design, Computer Architecture, Computer Networks, Circuit Analysis

Digital Systems Lab **Summer 2011 - Fall 2011**
Collaborated with Re-configurable Computing Systems Group on Kalman Filter Project
- **Al-Khwarizmi Institute of Computer Sciences Pakistan**
Research Assistant **Summer 2008 – Summer 2009**
Wireless and Digital Signal Processing Labs
- **Nokia Siemens Networks**
Lahore, Pakistan
Intern **Summer 2007**
BSS Planning Specialist Training

PROJECTS

- **Thesis: Learning from Demonstration (LfD) using Neuroevolution**

This was an interdisciplinary project linking the domain of robotics and machine learning where the goal was to train a mobile robot for certain task using neuro-evolution. The key concept for the project was the use of Learning from Demonstration (LfD) for mobile robots which were equipped with various proximity sensors. The performance of neuroevolution was compared with Support Vector machine (SVM) when used with LfD.

- **Diagnostic Assistant**

We implemented a diagnostic assistant using machine learning algorithms, that could assist medical professionals in the diagnosis of diseases, especially in rural areas where hospitals are not equipped with modern test labs. The Assistant could diagnose heart and skin diseases using two machine learning algorithms, K-means and Expectation Maximization and one neural network algorithm called Self-Organizing Maps. A portable version of the diagnostic assistant was implemented on FPGAs.

- **WiMAX Transmitter on SDR**

We worked on OFDM based physical layer implementation of WiMAX as defined by IEEE standard 802.16 using C++. We Implemented WiMAX transmitter on OSSIE platform which is an open source Software Defined Radio

- **Linear Systolic Arrays for Aeronautical Adaptive Filters**

We designed Linear Systolic Array architectures for accelerating H-Infinity/Kalman Filter Computations. Keeping scalability in view architectures for Matrix Algebra operations such as LU Decomposition and Matrix Triangularization were developed and mapped into a singular array. A prototype for Xilinx FPGAs was developed and verified using RTL Verilog.

TECHNICAL SKILLS

- Language Expertise: Java, C, C++, VHDL, VERILOG, MATLAB
- Development Platforms and Embedded Devices: Micro controllers (AT89C51), FPGAs (SPARTAN 3, SPARTAN 3E, SPARTAN 3A), Processor IP Cores (PicoBlaze, MicroBlaze)

WORKSHOPS

Conducted a number of workshops on MicroBlaze, PCB design and Matlab

PROFESSIONAL SOCIETIES

- International member of IET, formerly called IEE
- Honorary secretary of IET, student chapter UET, Lahore
- Worked under Young Member Section (YMS Pakistan) of IET
- Worked with IEEE student chapter, UET, Lahore
- Worked with ACM Student chapter, UET, Lahore

REFEREES

Dr. Mohammad Ali Maud

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Dr. Zubair Ahmad Khan

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