143, Halsey Dr. Apt. 6,
West Lafayette, IN 47906. US

Cell: +1 765 4763949
Email: shoaib.amjad@gmail.com

SHOAIB AMJAD KHAN

EDUCATION

Purdue University, USA	Ph.D. Computer Science	**CGPA: 3.83**	**2016 to date**
University of South Florida, USA	M.A. Mathematics, Discrete Math.	**CGPA: 3.83**	**2007 – 2009**
FAST-NU, Lahore, Pakistan	B.S. Computer Science.	**CGPA: 3.49**	**2001 – 2005**
FGS, Faisalabad, Pakistan	A-Level Cambridge Examination Board.	**Straight A's**	**1999 – 2001**

TECHNICAL SKILLS

Languages: C#, C++/C, Java, JavaScript, Python, UML, SQL, HTML, XML, Assembly Language (Intel x88, x386, Intel 8051/52 MC series), VERILOG, PROLOG, LateX.

Tools & Technologies: Visual Studios, Eclipse, Microsoft .Net Platform, Visio, Rational Rose, JBuilder, ERWin, Adobe Photoshop, Macromedia Dreamweaver, Microsoft Office, Logic Works.

Databases: Oracle, Microsoft SQL Server, Microsoft Access.

Operating Systems: Microsoft Windows, Linux, OS X, DOS.

R&D PROJECTS IMPLEMENTED

- **Student Registration System (in C++):** The project was an attempt to automate the process of semester registration for the Students of FAST-NUCES. It was an Objected Oriented Design that exclusively focused on issues of Object Oriented Paradigm like data encapsulation and polymorphism. I led the team of five.
- **Search Engine (in C++):** An HTML Search Engine that constituted two sub-modules, an indexing system and a querying system. The indexing system built an index file (ext. FTI) containing an index of all words in all files in a directory tree. Once this was done, the querying system was given a word to be searched as a command line argument and it would output the line number and file name pair for all occurrences of the word in all files.
- **Students' Academic Records and Result Compilation System (Java, JavaScript, SQL):** The system was an online database that would help manage the academic record of individual students of The Hailey College of Commerce-PU and also provide the facility of compilation of semester results to the academic staff.
- **Optical Character Recognition for Urdu (Nastaleeq Script) Using Neural Nets (in C#):** Optical character recognition (OCR) is the process of converting an image of text, such as a scanned paper document or electronic fax file, into computer-editable text. The primary aim of the proposed research was to probe into the problems faced in developing a practical OCR system for Urdu and seek AI solutions to these. I led the team.
- **Compiler for C-*ν* (C-NU) - A Subset of C++ (in C++):** Complete implementation of a compiler for a programming language for which the rules of grammar were a subset of the grammar for C++.
- **Chip Programmer (in C & Assembly):** Complete hardware & software of the flash code memory programmer for AT89S52 microcontroller, using PC parallel port interface. Also compatible with other variants of 8051/52 series having SPI interface and Serial Programming facility.
- **Various projects using Atmel® 8051/52 microcontroller series including (in C & Assembly):**
  - EEPROM (93C66, I^2C mode programming) interface
  - Keypad & 7-Segment Decoder (x4) interface
  - DC motor speed control using Pulse Width Modulation
  - Triac based AC voltage control
  - Sine Wave Synthesis
  - Dual slope volt meter & A-D converter
  - Bipolar stepper motor control
- **Pipelined MIPS Architecture (in VERILOG):** Architecture design of pipelined MIPS processor in Verilog.
- **Compression Software in Assembly Language:** Compressor (encryption, decryption, compression & decompression) utility using Assembly Language.

R&D PROJECTS MENTORED

- **Open Source iPhone to Android App Conversion Tool:** A formal language translation tool converting code written in Objective C to Java code. The tool is extensible and allows for updates in API mapping.
- **EmoTunes:** Using brain wave data from EEG to detect the present emotional state of the user and generating playlists to complement or supplement the emotional state of the user.
- **An Eye for Blind:** Using a simple VGA camera and a Depth Camera (e.g. Microsoft Kinect), helping the blind to find their way around by detecting and identifying obstacles. The project is extensible and aims to include navigation maps to guide the visually impaired. In addition we aim to include a face recognition module to help identify acquaintances for the visually impaired.

RESEARCH & PUBLICATIONS

- Graduate Research Assistant with Prof. Mikhail Atallah: *On Development & Implementation of Feasible Protocols for Secure Multiparty Computation*. (Jan 2017 to Date)
- Shoaib A. Khan, B. Nagle, *"A Hypergraph Regularity Method for Linear Hypergraphs, with Applications"*, LAP Lambert Academic Publishing (2011)
- Shoaib A. Khan, *"A Hypergraph Regularity Method for Linear Hypergraphs,"* Master'sThesis, University of South Florida, USA, 2009.
- Research Assistantship with *PAN Localization Project* from June 2004 to Nov 2004.

RESEARCH TALKS & WORKSHOPS

- Workshop for MPhil students on "*Quantum Computing*", Fall 2014, Kinnaird College for Women, Lahore, Pakistan.
- Research Talk: "*Quantum Computation: Its scope and limits*", May 2014, Kinnaird College for Women, Lahore, Pakistan.
- Workshop for MPhil students on "*Computability and Complexity*", Spring 2014, Kinnaird College for Women, Lahore, Pakistan.
- Research Talk: "*Soundness of Inprocessing in Clause Sharing SAT Solvers*" [N. Manthey,T. Philipp, C. Wernhard], August 2013, International Center for Computational Logic, TU Dresden, Germany.
- Research Talk: "*Research as a career path for graduating students*", IT Conference SOFTEC, April 2013, National University of Computer & Emerging Sciences, Lahore, Pakistan.
- Research Talk: "*An Algorithmic Hypergraph Regularity Method*", Theoretical Computer Science Workshop, Summer 2010, Forman Christian College University, Lahore, Pakistan
- Workshop Lecture: "*Logic & Proofs*", Theoretical Computer Science Workshop, Summer 2010, Forman Christian College University, Lahore, Pakistan.
- Workshop Lecture: "*Countability & Diagonalization*", Theoretical Computer Science Workshop, Summer 2010, Forman Christian College University, Lahore, Pakistan.

PROFESSIONAL EXPERIENCE

Present:

Aug 2016 – To Date: Purdue University, US
Grad T&RA, Dept. of Computer Sceince

Aug 2015 – Jul 2016: IT University, Lahore (On Leave)
Teaching Fellow, Dept. of Computer Science

Past:

Aug 2012 – Aug 2015: FAST-NU, Lahore
Assistant Professor, Dept. of Computer Science

Aug 2009 – Jul 2012: FAST-NU, Lahore
Lecturer, Dept. of Computer Science

Aug 2005 – Aug 2007: FAST-NU, Lahore
Instructor, Department of Computer Science

Aug 2004 – May 2005: FAST-NU, Lahore
TA / Lab Instructor, Dept. of Computer Science

COURSES TAUGHT

- Design & Analysis of Algorithms
- Computability & Complexity (Graduate)
- Discrete Mathematics
- Theory of Computation (Graduate)
- Automata Theory
- Digital Logic Design
- Computer Architecture & Organization
- Assembly Language Programming

OTHER ACADEMIC WORK

Authored Lab Manuals for CS/EE Dept. at FAST-NU for the following undergraduate courses:

- Computer Logic & Design
- Microprocessor Interfacing
- Embedded Systems
- Computer Networks & Communication
- Computer Organization & Architecture

HONORS & AWARDS

- **Fulbright Scholarship** for Master's Degree from August 2007 to August 2009.
- **PITB Outstanding Talent Scholarship** throughout studies for BS(CS) Degree.
- Name in **Dean's Honor's List** for excellent academic performance during studies for BS(CS) Degree.
- **Topped** the batch (2001) in the first semester (Fall 01) of BS and earned the University Scholarship.
- Scored a **99%** in **Mathematics** in A' level.
- Scored a **95%** in **English Language** in O' level.
- Received the award of a **Gold Medal** in 1998 for outstanding all rounder performance throughout the school years. (Faisalabad Grammar School).

CO- CURRICULAR ACTIVITIES

- Avid participation and awards in several bi-lingual debate/declamation contests.
- Chairmanship of ACM - NUCES Lahore Chapter, 2005.
- SOFTEC Stage Secretary, 2003 – 2005.
- Squash, Basket-Ball, Badminton and Swimming.
- Trekking, Mountaineering, Paragliding, Sky-diving
- Reading, Philosophizing.
- Travelling.

REFERENCES

- **Dr. Mikhail Atallah, Distinguished Professor of CS, Purdue University, USA. Email: mja@cs.purdue.edu**.
- **Dr. Brendan Nagle, Associate Professor, University of South Florida, USA. Email: bnagle@usf.edu ; Phone: +1 (813) 974 9724**
- **Dr. S.M. Husnine, Professor, National University of Computer & Emerging Sciences (FAST-NU) Lahore, Pakistan. Email: syed.husnine@nu.edu.pk ; Phone: +92 (300) 844 0992**
- **Mr. Belal Muhammad Hashmi, Associate Professor, University of Management & Technology, Lahore, Pakistan. Email: belal.hashmi@umt.edu.pk ; Phone: +92 (321) 443 8334**
- **Dr. Imran Farid Khan, Assistant Professor, Punjab University College of Information Technology (PUCIT), Lahore, Pakistan. Email: imran.farid@pucit.edu.pk; Phone: +92 (303) 701 2225**
- **Dr. Adnan Noor, Associate Professor, IT Univesity of Punjab, Lahore, Pakistan. Email: adnan.noor@itu.edu.pk ; Phone: +92 (323) 483 8773**