Mehrdad Hessar

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Research Interests

- Computer Architecture
- FPGAs
- System-on-Chip (SoC)
- Embedded Systems Design
- VLSI

Education

Amirkabir University of Technology (Tehran, Iran) *Oct/2011-Present*
B.Sc. Computer Engineering (expected graduation date: June 2015)
GPA: 3.86/4 (18.1/20) **Last year GPA:** 4/4 (18.9/20)
GPA (Major Courses): 4/4 (18.8/20)

Rasoul Akram High School (Behbahan,Khouzestan, Iran) *Oct/2007-May/2011*
Diploma in Mathematics & Physics Field (GPA: 19.5/20)

Research Experience

Fundamentals of Networking Lab **Collaborator**
Electrical Engineering Department *Jan/2014-Present*
University of Washington
Research: Collaboration in design and implementation of following two projects:

- **SpecObs***: cloud-based spectrum observatory software*
- **Campus Link***: FPGA implementation of wireless physical layer (WiFi, 802.11a)*

Spectrum Observatory Home

Digital System Design (DSD) Group **Founder, Technical Committee**
CEIT Department *Oct/2013-Present*
Amirkabir University of Technology
Research: FPGA implementation of NIOS II, VGA and Ethernet on Altera DE2 board.

Teaching Experience

- Winter 2014, TA, "**Microprocessors**" Undergraduate course; CEIT Department, Amirkabir University of Technology. Instructor: Associate Prof. Mohammad Mehdi Homayounpour.
  Holding TA sessions to answer students' questions, grading home works and projects, etc.
- Winter 2014, TA, "**Computer Architecture**" Undergraduate course; CEIT Department, Amirkabir University of Technology. Instructor: Assistant Prof. Hamid Reza Zarandi.
  Holding TA sessions to answer students' questions, grading home works and projects, etc.

- Winter 2013, TA, "**Advanced Programming**" Undergraduate course; CEIT Department, Amirkabir University of Technology. Instructor: Assistant Prof. Seyed Majid Noorhosseini.
  Grading home works and projects.

Work Experience

Digital System Design Group — **Research Intern**
Amirkabir University of Technology, Tehran — June 2014 - September 2014
Implementation of Xilinux on ZedBoard Zynq-7000 Development Board

Major Undergraduate Courses

- Principles of Computer and Programming
- Advanced Computer Programming
- Data Structures and Algorithms
- Design of Algorithms
- Principles of Database Design
- Electric Circuits I
- Electric Circuits II
- Electronic Circuits
- Digital Electronics
- VLSI Systems Design
- Technical English
- Research Method & Report Writing
- Discrete Structures
- Logic Circuits
- Machine Language Programming
- Computer Architecture
- Microprocessors
- Industrial Automation
- Operating System Design
- Computer Networks I
- Computer Networks II

Projects

- **SpecObs** *Winter 2014*
  Collaboration in implementing a cloud-based software for TV white space spectrum, EE Dept. University of Washington
  SpecObs Observatory Home
- **Campus Link** *Winter 2014*
  Collaboration in implementing WiFi physical layer (802.11a) in Altera Cyclone IV FPGA for SDR board bladeRF, EE Dept.
  University of Washington
- **Implementation of HDLC Protocol** *Spring 2014*
  Using Java programming language to implement "HDLC Protocol" as the course of "Computer Network II". In this project, frame generating that is included data bit stuffing, CRC and control bits implemented and then I made one station between Server and Client that can change frame's bits with a specific probability.
- **Design and Implementation of a Database called "Anjoman"** *Spring 2014*
  Using MySQL database programming language to design and implement database of a Forum called "Anjoman" as the course of "Principles of Database Design". In this project, first I designed an ERD of database with "Visual Paradigm for UML" software, then tables created and then I wrote queries that was defined in project.
- **Design and Implementation of Half Adder Gate** *Spring 2014*
  Using Cadence ICFB software to implement a Half Adder as the course of "VLSI Systems Design". First I designed a Nand and an Inverter Standard Cell and then I implemented HA with these Standard Cells.
- **Implementation of "Multiplier", "Divider" and "Radical" Module** *Fall 2013*
  Using HSpice language to implement three modules as the course of "Digital Electronics". We tried to implement these modules with low power consumption and low propagation delay.

- **Design and Implementation of "FTP Client"** *Fall 2013*
  Using Java programming language to design and implement a "FTP Client" as the course of "Computer Network I". The ftp client can connect to every ftp server and do whatever a user need to do with a FTP server, such as list the user's files, delete file, make new folder, upload to server, download from server, etc.
- **Design and Implementation of "iMasterMind"** *Fall 2012*
  Using Proteus to implement a game called "iMasterMind" as the course of "Logic Circuits".
- **Design and Implementation of "JDM"** *Winter 2012*
  Using Java programming language to design a program called "JDM"(Java Download Manager) that is a downloader software with a friendly interface as the course of "Advanced Computer Programming".
- **Design and Implementation of "JTank"** *Winter 2012*
  Using Java programming language to implement a game called "JTank"(Java Tank) that is similar to "Normal Tanks" game as the course of "Advanced Computer Programming"
- **Design and Implementation of "Calculator"** *Fall 2011*
  Using C programming language to implement a program called "Calculator" that is a Scientific and Grapher calculator as the course of "Principles of Computer and Programming".
- **Design and Implementation of "Editor"** *Fall 2011*
  Using C programming language to implement a program called "Editor" that it can type English and Persian as the course of "Principles of Computer and Programming".

Lectures And Presentations

Amirkabir University of Technology (Tehran)

- Oral Presentation of "Placement: History, algorithms and a new solution based on Routability", Amirkabir University of Technology, Tehran, Iran. May 2014

Publication

- M. Hessar, "CDBS Database Management for SpecObs"
  Technical report for design and implementation of CDBS database management for SpecObs project "SpecObs Project", Tehran, Iran. - August 2014
- M. Hessar, "Placement Solutions for Routability"
  Literature reviews for "Research Method & Report Writing" course, Tehran, Iran. - June 2014
- F. Hessar, S. Roy, M. Hessar, "Design and Implementation of an SDR-based WiFi platform for TV White Space Spectrum" ,To be submitted to IEEE Communication Magazine.
- M. Hessar, Technical report for design and implementing "Half Adder Gate" with Cadence ICFB for "VLSI" course, Tehran, Iran. - May 2014
- M. Hessar, Technical report for design and implementing a database called "Anjoman" with MySQL for "Principles of Database Design" course, Tehran, Iran. - May 2014

Awards and Honors

- Awarded honorary **Direct Admission** to graduate school (M.Sc.) of Computer Engineering, without taking the national entrance exam for graduate schools as a reward of high academic records and achievements, Sharif University of Technology, Tehran, 2014.
- Awarded honorary **Direct Admission** to graduate school (M.Sc.) of CEIT, without taking the national entrance exam for graduate schools as a reward of high academic records and achievements, Amirkabir University of Technology, Tehran, 2014.
- Eligible to **Choose Second Major** due to outstanding performance, CEIT Department, Amirkabir University of Technology, Tehran.
- Awarded the **Outstanding Student** title by the head of CEIT Department, Amirkabir University of Technology, Tehran.

- **Ranked First** among undergraduate students of Hardware Engineering in CEIT Department, Amirkabir University of Technology, Tehran, 2014.
- **Ranked as Top 10%** among more than 100 undergraduate students in CEIT Department, Amirkabir University of Technology, Tehran, 2014.
- **Ranked as Top 0.5%** among more than 300,000 Participants in National Entrance Exam for Undergraduate State Universities, Tehran, 2011.

Professional Skills

- **Programming Languages**: C, C++, JAVA, MySQL, AVR, x86 Assembly, PLC Ladder Logic.
- **Hardware Description Languages**: Verilog, VHDL.
- **Typesetting**: LaTeX, Microsoft Word.
- **Software**: Proteus, Modelsim, NetBeans, HeidiSQL, Visual Paradigm for UML,Orcade Capture CIS, Xilinx ISE, Altera Quartus, SPICE, Turbo C, Git (Version Control), Simatic Step 7, Cadence ICFB, Packet Tracer,etc.
- **Operating System**: Windows, Linux.
- **Language**: English(Fluent), Persian(Native).

References

Professor **Sumit Roy** University of Washington- Seattle
Email: roy@ee.washington.edu Homepage: www.ee.washington.edu/faculty/roy

Professor **Hamid Reza Zarandi** Amirkabir University of Technology- Tehran
Email: h_zarandi@aut.ac.ir Homepage: www.aut.ac.ir/h_zarandi

Professor **Hossein Pedram** Amirkabir University of Technology- Tehran
Email: pedram@aut.ac.ir Homepage: www.ceit.aut.ac.ir/∼pedram/

More references available upon request.