

Yousra Alkabani

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Fields of Interest	Hardware security, digital rights management, computer aided design, computer architecture; embedded systems; digital circuit design using VHDL/ Verilog; artificial intelligence; control systems.
Education	<p>Computer Science, Rice University, Houston, Texas Joined the Ph.D. program Fall 2006</p> <p>Computer and Systems Engineering, Ain Shams University, Cairo, Egypt MSc. Electrical Engineering (March 2006)</p> <ul style="list-style-type: none">• Title: Network Processing Units• Thesis Summary: Network processing unit architecture was studied. Based on profiling the operation of software based NPU, certain modules were selected for hw implementation and a sw/hw FPGA based platform was used to test a working prototype• Advisors: Dr. Hassan Sh. Bedor, Dr. M.Watheq Elkharashi <p>BSc. Computer and Systems Engineering (June 2003)</p> <ul style="list-style-type: none">• Graduation Project: Design and Implementation of Dataflow Machine on FPGA• Graduation Project Summary: General purpose architecture of a dataflow machine was designed in VHDL. Different applications were studied to see the suitability of this architecture to implement these applications. A graphical IDE was designed to simulate and program the dataflow machine.• Project grade: Distinction• Overall grade: Distinction with honors (94.6%)• GPA: 3.94• Rank: Top of the class <p>Saint Fatima Languages School General Certificate of Secondary Education (Math Section)</p> <ul style="list-style-type: none">• Total score: 98% + 4.4% advanced level subjects (102.4%)
Work Experience	<p>September 2003- 2006: Faculty of Engineering, Ain Shams University</p> <ul style="list-style-type: none">• Teaching and Research Assistant (Department of Computer & Systems Engineering) <p>January 2004 – 2006: Mentor Graphics Egypt, MGE(part time)</p> <ul style="list-style-type: none">• Seamless team• Meta QA team <p>July 2002- September 2002: Cube Optics AG (Mainz-Germany, www.cubeoptics.com) (internship)</p> <ul style="list-style-type: none">• Software engineering department• Marketing department <p>July 2001- September 2001: Guide Systems Integrators (Cairo) (training)</p> <ul style="list-style-type: none">• Digital circuits Design using VHDL

Teaching
Experience

- Control Systems
- Introduction to Computers
- Computer Circuits Design (using VHDL)
- Intelligent Control Systems
- Introduction to Computer Architecture
- Micro-Processor based systems (the course was based on Motorola 68HC11)
- Embedded Systems
- Computer Architecture(using Verilog)
- Project Management
- Labs

Technical
Experience

- Computer architecture (graduation project, teaching, MSc)
- Digital circuit design using VHDL (summer training, graduation project, MSc, teaching)
- Digital circuit design using Verilog (meta QA team at MGE)
- Perl and shell scripting to generate Verilog code and automate software testing (meta QA team at MGE)
- Embedded systems design and programming in C (teaching, MSc, Seamless team at MGE)
- Hardware- software co-design (MSc, Seamless team at MGE)
- Integrating matlab/simulink with other software tools written in C (Seamless team at MGE)
- Machine learning techniques (MSc)

Software Tools

- **Programming languages:** C/C++, Java (basics), visual basic (building interfaces), matlab, labview, perl, VHDL, Verilog, SQL, XML
- **CAD tools:** Xilinx(ISE, EDK), Mentor Graphics(Modelsim, Leonardo, Seamless, PX, ASAP, Diamond)
- **Operating systems used:** Windows, Linux (Redhat, Mandrake), Solaris

Awards

- **September 2006- May 2006:** Rice Graduate Fellowship.
- **October 2003:** Ain Shams University award for ranking at first position among graduates from Computer and Systems Engineering Dept., 2003.
- **September 2001, 2000, 1999, 1998:** Egyptian Ministry of Higher Education Universities grant, for distinction in the undergraduate studies at Ain Shams University, faculty of Engineering.
- **1995, 1994:** Two golden medals for children story writing from the national center for children culture, Egyptian ministry of culture, in addition to a certificate of recognition and a 12 days visit to Germany from Goethe institute in Cairo.
- **1995:** Certificate of Recognition for presenting Egypt in Germany among a group of young people.

Publications

- Y. Alkabani, F. Koushanfar. "Active Control and Digital Rights Management of Integrated Circuit IP Cores." ACM/IEEE International Conference on Compilers, Architectures, and Synthesis for Embedded Systems (CASES), 2008.
- Y. Alkabani, F. Koushanfar, N-Variant Design: Methodology and Applications. In DAC 2008.
- Y. Alkabani, T. Massey, F. Koushanfar, M. Potkonjak, Input Vector Control for Post-Silicon Leakage Current Minimization in the Presence of Manufacturing Variability. In DAC 2008.
- Y. Alkabani, F. Koushanfar, N. Kiyavash, M. Potkonjak, Trusted Integrated Circuits: A Nondestructive Hidden Characteristics Extraction Approach. In IH 2008 (to appear).
- Y. Alkabani, F. Koushanfar, M. Potkonjak, Remote Activation of ICs for Piracy Prevention and Digital Right Management. ICCAD 2007 (to appear).
- Y. Alkabani and F. Koushanfar, "Active Hardware Metering for Intellectual Property Protection and Security", USENIX Security, pages 291–306, 2007.
- Y. Alkabani, H. Bedor, M. Elkharashi, "Hardware- Software Partitioning of a Bayesian Spam Filter via Hardware Profiling," the proceedings of the IEEE International Symposium of Industrial Electronics (ISIE2006), Montreal, Canada.

Other Activities

- Hobbies: Sports(Squash – Basket ball – Croquet), Writing short stories and poetry, Reading, Drawing, Listening to music

Languages spoken and written

Arabic:

- Mother tongue

English:

- General level: excellent
- Fluently spoken and written
- (First language at school)
- TOEFL score: 290 CBT

French:

- General level: Good
- Fairly spoken and written
- (Second language at school + finished first 9 levels in CFCC (November 2004))

German:

- General level: Beginner
- Passed G9 in Goethe Institute (Cairo) September 2004
- Passed M1 March 2005

References

- Available upon request