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Personal Information

- **Nationality:** Jordanian
- **Date of Birth:** October 1st, 1976
- **Marital Status:** Married
- **Native Language:** Arabic

Education

- **Ph.D. in Computer Engineering** January, 2007.
 - **University:** Case Western Reserve, Cleveland, Ohio, USA.
 - **Advisor:** Prof. Christos Papachristou, Johns Hopkins University, Baltimore, Maryland, USA.
 - **Dissertation:** Scalable Moduli Multiplier Designs for Cryptographic Applications Folded in FPGAs.
- **M.Sc. in Computer Engineering** August, 2003.
 - **University:** Case Western Reserve, Cleveland, Ohio, USA.
 - **Advisor:** Prof. Christos Papachristou, Johns Hopkins University, Baltimore, Maryland, USA.
 - **Thesis:** A Data Path Reconfigurable Architecture with a Placement and Routing Method.
- **B.Sc. in Electrical Engineering** January, 2000.
 - **University:** Jordan University of Science and Technology (JUST), Irbid, Jordan.
 - **Specialty:** Computer Engineering.

Experience

- May. 2015 – Present: Associate Professor of Computer Engineering, JUST, Jordan.
- Jan. 2007 – May. 2015: Assistant Professor of Computer Engineering, JUST, Jordan.
- Summer, 2006: Instructor, EECS Department, Case Western Reserve University, Cleveland, Ohio, USA.
- Summer, 2005: Instructor, EECS Department, Case Western Reserve University, Cleveland, Ohio, USA.
- Aug. 2003 – Aug. 2006: Research Assistant, Case Western Reserve University, Cleveland, Ohio, USA.
- Aug. 2004 – Aug. 2006: Part Time Computer Engineer, Law School IT Center, Case Western Reserve University, Cleveland, Ohio, USA.
- Jan. 2002 – May. 2003: Teaching Assistant, Case Western Reserve University, Cleveland, Ohio, USA.
- Sep. 1999 – Jul.2000: Teaching and Research Assistant, Yarmouk University, Irbid, Jordan.

- Jul. 2000 – Dec. 2000: IT Instructor, Irbid Municipality, Irbid, Jordan.

Teaching	
Jordan University of Science and Technology, Irbid, Jordan	Undergraduate Level
	<ul style="list-style-type: none"> ▪ Digital Logic Design. ▪ Digital Logic Design Laboratory. ▪ Computer Organization and Design. ▪ Digital Logic Design and Computer Architecture. ▪ Hardware Description Language. ▪ Microprocessor Systems and Assembly Language. ▪ Microprocessor Systems and Assembly Language LAB. ▪ Microprocessor Systems. ▪ FPGAs Design. ▪ Computer Architecture. ▪ Advanced Computer Architecture ▪ Advanced Digital Systems Design ▪ Computer Systems Project
	Graduate Level
	<ul style="list-style-type: none"> ▪ Chip Multithreaded (CMT) Processors Design and Validation. ▪ Advanced FPGAs Design Using Verilog. ▪ Advanced FPGAs Design Using VHDL.
Case Western Reserve University, Cleveland, Ohio, USA	Undergraduate Level
	<ul style="list-style-type: none"> ▪ Logic Design and Computer Organization. ▪ Digital Logic Laboratory.
New York Institute of Technology, Amman, Jordan	Graduate Level
	<ul style="list-style-type: none"> ▪ Signals and Linear Systems.
German Jordan University, Madaba, Jordan	Undergraduate Level
	<ul style="list-style-type: none"> ▪ Computer Architecture and Organization.
	Graduate Level
	<ul style="list-style-type: none"> ▪ Advanced Computer Architecture and Organization.
Yarmouk University, Irbid, Jordan	Undergraduate Level
	<ul style="list-style-type: none"> ▪ Digital Logic Design. ▪ Digital Logic Laboratory. ▪ Numerical Analysis Laboratory. ▪ Programming Language Laboratory (C-Language). ▪ Interfacing Laboratory.
	Graduate Level
	<ul style="list-style-type: none"> ▪ Digital Systems Design Using FPGAs.

Advising (M.S. Theses at JUST)

- Ghassan Abdo Hussein Rayyashi, "Information Hiding Using New Histogram Based Steganographic Technique", January 2009.
- Nuh Halid Tuli, "FPGA Implementations of Decimal Arithmetic Cells", June 2009
- Suhibe Qassem Obiedat, "Experimental Approach to Optimizing Field-Programmable Gate Arrays (FPGAs) Architectures for Digital Signal Processing (DSP) Applications", May 2010.
- Amr Mohammad "Efficient Decimal Multiplication Based on Dedicated Binary Multipliers in FPGAs", October 2015.
- Ahmad Baset, "Chip Multithreaded (CMT) Processor Validation Using Field Programmable Gate Arrays (FPGAs)", October 2010. (Co-advisor).
- Ayat Quran (Currently).
- Abdurrahman Nono (Currently).
- Bilal Mohsin (Currently)
- Asma' Bataineh (Co-advisor) (Currently).
- Mohammad Alhulayil (Co-advisor) (Currently).
- Mohammad Ahmad Altahat "Study of Performance and Power Consumption of Hypervisor System", June, 2014 (Co-advisor).
- Abdelrahman Adnan Idries "A Spatial Image Compression Algorithm Based on Run-Length Encoding", December 2014 (Co-advisor).

Committee Member (M.S. Theses at JUST)

- Wafaa Kanakri, "Elliptic Curve Crypto-Processor Implementation Using Efficient Calculations of Modular Multiplicative Inverse", January 2010.

Advising (Graduation Projects)

- Arabic Sign language translation system.
- Smart CAP KIT (SCK) for the blind people.
- Online TI-82-Like scientific calculator.
- Voice based grades entry system.
- Educational tool for the digital logic design course.
- Image processing hardware accelerator.
- Hardware implementation of Mano basic computer.
- Arabic optical recognition system (AOCR).
- Modeling and simulation software tool for the carbon nanotube (CNT) technology.
- Modeling and simulation software tool for the Nano-CMOS technology.
- Automated statistical analysis tool for the performance of the CIT students at JUST.
- Mantalat OS.
- Bluetooth-based information feeding system (BIFS).
- Virtual paint over using FPGAs.
- Arduino based UAV controlling.
- Home appliance and control system using Arduino
- Voice based HCI system.
- Iris based identification system.
- Arabic speech recognition system.
- Fingerprint based identification system.

Technical Skills

- **Hardware design and simulation:**
 - Verilog, VHDL, SPICE, MentorGraphics (ModelSim, LeonardoSpectrum, ICStation), Xilinx (ISE, ISim), Synopsys (VCS, Design compiler), PSpice, Icarus Verilog, SynaptiCAD, Altera Quartus II, VPR.
- **Programming and scripting:**
 - C/C++, Java, HTML, JavaScript, CGI (Perl), Java Applets, PHP, Intel and Motorola assembly, MATLAB, Mathematica.
- **Operating systems:**
 - UNIX, Linux, and Windows.

Projects and Assignments

- Building a 2-pass assembler, linker, and loader for RISC561 machine (Using Java).
- Building and testing a Motorola 68000 based computer system. (Using off-the-shelf hardware components).
- Design a virtual memory management system simulator. (Using C).
- An online assembler and simulator for the MC68k microprocessor. (Using Java applets).
- Control unit for a video phone system. (Using VHDL, Synopsys simulation and synthesis tools).
- Placement and routing tool for a coarse grain reconfigurable architecture. (Using Java).
- Interfacing of an audio system to a PC. (Hardware and Software (QBasic)).
- Interactive simulation of a pipelined FIR filter. (Using Java).
- Design, layout, and simulate a voltage-controlled oscillator. (Using PSpice and L-Edit).
- Design, layout, and simulate a two-stage CMOS operational amplifier. (Using PSpice and L-Edit).
- Design and simulate a Schmitt trigger. (Using PSpice)
- Quadratic polynomial hardware roots solver. (Using VHDL, Synopsys simulation and synthesis tools).
- Design and layout an ALU. (Using Mentor Graphics IC station).
- Describe and simulate a hypothetical processor. (Using Verilog and Modelsim)
- Synthesis of different small scale logic circuits. (Using Leonardo spectrum synthesis tool).
- Small scale web server. (Using JAVA).
- Client-Server chatting system. (Using JAVA).

Publications

Conferences:

- Inad Aljarrah, Abdullah Al-Amareen, Abdelrahman Idries, **Osama Al-Khaleel**, "Image Mosaicing Using Binary Edge Detection", *Proceedings of the International conference on Computing Technology and Information Management*, pp.186-190 Dubai, UAE, 2014.
- **Osama Al-Khaleel**, Abdelrahman Idries, Khaldoon Mhaidat, and Inad Aljarrah, "FPGA-Based Features Extraction Unit for Arabic Characters", *The 4th International Conference on Information and Communication Systems (ICICS '13)*, Irbid, Jordan, April 2013.
- Khaldoon M. Mhaidat, Mohammad A. Altahat, **Osama D. Al-Khaleel**, " High-Throughput Hardware Implementation of Threefish Block Cipher on FPGA", *The 4th International Conference on Information and Communication Systems (ICICS '13)*, Irbid, Jordan, April 2013.

- **Osama D. Al-Khaleel**, Nuh H. Tulic, Khaldoon M. Mhiadat, “FPGA Implementation of Binary Coded Decimal Digit Adders and Multipliers”, *International Symposium on Mechatronics and its Applications (ISMA12)*, Sharjah, UAE, April 2012.
- Inad Aljarrah, **Osama Al-Khaleel**, Khaldoon Mhaidat, Mu'ath Alrefai, Abdullah Alzu'bi, and Mohammad Rabab'ah, “Automated System for Arabic Optical Character Recognition”, *In Proceedings of the 3rd International Conference on Information and Communication Systems (ICICS '12)*, Irbid, Jordan, April 2012.
- **Osama Al-Khaleel**, Zakaria Al-Qudah, Mohammad Al-Khaleel, Christos A. Papachristou , and Francis G. Wolff, “Fast and Compact Binary-to-BCD Conversion Circuits for Decimal Multiplication”. *The 29th IEEE International Conference on Computer Design (ICCD 2011)*, Amherst, Massachusetts, October 2011.
- **Osama Al-Khaleel**, Mohammad Al-Khaleel, Zakaria Al-Qudah, Christos A. Papachristou, Khaldoon Mhaidat, and Francis G. Wolff, “Fast Binary/Decimal Adder/Subtractor with a Novel Correction-Free BCD Addition”, *The 18th IEEE International Conference on Electronics, Circuits, and Systems (ICECS 2011)*, Beirut, Lebanon, December 2011.
- Zakaria Al-Qudah, Iyad Abu Doush, Faisal Alkhateeb, Esalm Al Maghayreh, and **Osama Al-Khaleel**, “Reading Braille on Mobile Phones: A Fast Method with Low Battery Power Consumption”, *International Conference on User Science and Engineering (i-USER 2011)*, Shah Alam Selangor, Malaysia, 29 November - 01 December 2011.
- A. Al-Dmour, A. Musa, F. Fraij, **O. Al-Khaleel**, and M. Irshid, “Arabic Text Compression Technique Based on Lempel-Ziv Algorithm,” *The 2009 International Conference on Information and Knowledge Engineering (IKE '09)*, Las Vegas, Nevada, July 2009.
- A. Musa, A. Al-Dmour, **O. Al-Khaleel** and M. Irshid, “An Efficient Text Compression Technique Using Lempel-Ziv Algorithm,” *International Conference on Modeling and Simulation*, Petra, Jordan, November 2008.
- **Osama Al-Khaleel**, Chris Papachristou, Francis Wolff, Kiamal Pekmestzi, “An Elliptic Curve Cryptosystem Design Based on FPGA Pipeline Folding”, *Proceedings of the 13th IEEE International On-Line Testing Symposium (IOLTS '07)* 71-78, July 2007 .
- **Osama Al-Khaleel**, Chris Papachristou, Francis Wolff, Kiamal Pekmestzi, “FPGA-based Design of a Large Moduli Multiplier for Public Key Cryptographic Systems”, *Proceedings of the 24th IEEE International Conference on Computer Design (ICCD '06)*, October 2006.
- **Osama Al-Khaleel**, Chris Papachristou, Francis Wolff, Kiamal Pekmestzi, “A Large Scale Adaptable Multiplier for Cryptographic Applications”, *Proceedings of the first NASA/ESA conference on Adaptive Hardware and Systems (AHS '06)* 477-484, June 2006.

Journals:

- **Osama Al-Khaleel**, Zakaria Al-Qudah, Mohammad Al-Khaleel, Raed Bani-Hani, Christos A. Papachristou , and Francis G. Wolff, “Efficient Hardware Implementations of Binary-to-BCD Conversion Schemes for Decimal Multiplication”. *Journal of Circuits, Systems, and Computers*. Volume 24. Issue 2, February 2015.

- Khaldoon Moosa Mhaidat, Ahmad Baset, **Osama Al-Khaleel**, “OpenSPARC Processor Evaluation Using Virtex-5 FPGA and High Performance Embedded Computing (HPEC) Benchmark Suite”. *International Journal of Embedded and Real-Time Communication Systems*. Volume 5, Issue 1, 2014, Pages 61-74.
- **Osama Al-Khaleel**, Inad Aljarrah ,Abdelrahman Idries, and Khaldoon Mhaidat, “Hardware Implementation of Web Based Arabic Optical Character Recognition Units”. *Journal of Emerging Technologies In Web Intelligence*, Volume 6, Issue 2, May 2014, Pages 210-219.
- Zakaria Al-Qudah, Iyad Abu Doush, Faisal Alkhateeb, Eslam AlMaghayreh, and **Osama Al-Khaleel**, "Utilizing Mobile Devices' Tactile Feedback for Presenting Braille Characters: An Optimized Approach for Fast Reading and Long Battery Life", *Interacting with Computers*, Volume 26, Issue 1, May 2014, Pages 63-74.
- Zakaria Al-Qudah, Basheer Al-Duwairi, and **Osama Al-Khaleel**, “DDoS protection as a service: hiding behind the giants,” *International Journal of Computational Science and Engineering*, Inderscience Enterprises, Volume 9, Issue 4, 2014, Pages 292-300.
- **Osama Al-Khaleel**, Zakaria Al-Qudah, Mohammad Al-Khaleel, Christos Papachristou, “High performance FPGA-based decimal-to-binary conversion schemes for decimal arithmetic”, *Microprocessors and Microsystems*, Volume 37, Issue 3, May 2013, Pages 287-298.
- I.A. Aljarrah, **O.D. Al-Khaleel**, H.M. Al-Khateeb, K.M. Aljarrah, F.Y. Alzoubi, “A new method for measuring tracks density in CR-39 detectors by compensating for overlapping tracks”, *Radiation Measurements*, Volume 47, Issue 7, July 2012, Pages 537-540.
- Inad Aljarrah, **Osama Al-Khaleel**, Khaldoon Mhaidat, Mu'ath Alrefai, Abdullah Alzu'bi, Mohammad Rabab'ah, “Automated System for Arabic Optical Character Recognition with Lookup Dictionary”, *Journal of Emerging Technologies in Web Intelligence*, Volume 4, Issue 4, November 2012, Pages 362-370.
- Hussein R. Al-Zoubi, Anas M. Bataineh, and **Osama D. Al-Khaleel**, “An Efficient FPGA Hardware Implementation of the ThreeFish Tweakable Block Cipher,” *International Journal of Modelling and Simulation*, Vol. 32, No. 2, ACTA Press, 2012, Pages 128-133.
- A. Musa, A. Al-Dmour, **O. Al-Khaleel** and M. Irshid, “An efficient compression technique using Lempel-Ziv algorithm based on dynamic source encoding scheme,” *International Journal of Information and Communication Technology (IJICT)*, Vol. 2, No. 3, Inderscience Enterprises, 2010, Pages 210-219.
- A. Musa, A. Al-Dmour, F. Fraij, **O. Al-Khaleel** and M. Irshid, “A dynamic and Secure Arabic Text Compression Technique Using Bitwise Lempel-Ziv Algorithm,” *Information Technology Journal*, Vol. 9, No. 4, Asian Network for Scientific Information, 2010.

Presentations

- “FPGA Implementation of Binary Coded Decimal Digit Adders and Multipliers”, *International Symposium on Mechatronics and its Applications (ISMA12)*, Sharjah, UAE, April 2012.
- “Reading Braille on Mobile Phones: A Fast Method with Low Battery Power Consumption”, *International Conference on User Science and Engineering (i-USEr 2011)*, Shah Alam Selangor,

Malaysia, 29 November - 01 December 2011.

- “Video Phone System”, Case Western Reserve University, EECS Department, April 2001.

Professional services

- Member of the program committees for the following conferences:
 - The IEEE Jordan Conference on Applied Electrical Engineering and Computing Technology (AEECT), Jordan, 2011.
 - International Conference on Information and Communication Systems (ICICS), Jordan, 2010, 2011, 2012, 2013).
- Reviewer for several international journals and conferences.
 - IEEE Transaction on Computers.
 - IEEE International Conference on Electronics, Circuits, and Systems (ICECS 2011).
 - International Journal of Electronics.
 - International Journal of Modeling and simulation.
 - Journal of King Saud University - Computer and Information Sciences.
 - Circuits, Systems & Signal Processing.
 - Neural Computing and Applications.
- Member of the following committees at JUST
 - Curriculum and Course Equivalency Committee.
 - Labs and Lab Manuals Improvement Committee.
 - Graduation Projects Committee.
 - ABET committee
 - Accreditation and quality assurance committee
 - Promotion/appointment committee

References:

- Available upon request

Last updated: February 10th , 2016.