

**AMER AL-CANAAN, Ph.D.**

**RENEWABLE ENERGY ENGINEERING**

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**Education**

- 2014 - Ph.D. in Electrical Engineering, University of Sherbrooke, Sherbrooke, Canada.
- 2005 – MSc. in Electrical Engineering, University of Sherbrooke, Sherbrooke, Canada.
- 1997 – BSc. in Electrical Engineering, Yarmouk University, Irbid, Jordan.

**Research Interests**

- DSP and EEG signals.
- Brain-Computer Interface (BCI).
- Digital system design on FPGA using VHDL.
- Machine learning and classifiers using Python.
- VoIP and IP telecommunications services and VoIP protocols.
- RESTful Multimedia Web services.
- Renewable energy.

**Teaching Interests**

- Computer organisation and architecture (MIPS RISC microprocessors).
- Digital system design using VHDL and FPGA.
- Digital logic design (combinatorial and sequential).
- Electric circuits I (AC/DC circuit analysis, transient and steady-state analysis).
- Computer networks.
- Analogue electronics and active filters.
- Discrete mathematics.
- Probability and statistics.
- Software compilers.
- Power systems operation and control
- Power systems I
- Digital signal processing
- Electronics II
- Scientific computing languages (MATLAB/PYTHON)
- Creativity and entrepreneurship.

## Professional Experience

### 1. Academic Positions

- Assistant Professor, Renewable Energy Engineering Department, Jadara University, Irbid, Jordan, March 2022 –present.
- Assistant Professor, Electrical Engineering Department, Islamic University, Al-Madinah Al-Munawara, Saudi Arabia, Aug. 2016 –Sept. 2021.
- Adjunct Professor, Electrical Engineering Department, University of Sherbrooke, Sherbrooke, Canada, Jan. 2015 – Jul. 2016.
- Lecturer, Electrical Engineering Department, University of Sherbrooke, Sherbrooke, Canada, Sep. 2009 – Dec. 2013.
- Teaching assistant, Electrical Engineering Department, University of Sherbrooke, Sherbrooke, Canada, Jan. 2005 – Dec. 2014.

### 2. University Committee Services

- Chairman, Learning Resources Committee, Faculty of Engineering, Islamic University in Al-Madinah, Al-Madinah Al-Munawarah, Saudi Arabia, Sept. 2017- 2019.
- Member, Facilities Committee, Faculty of Engineering, Islamic University in Al-Madinah, Al-Madinah Al-Munawarah, Saudi Arabia, 2016- 2017.
- Member, Quality and Academic Accreditation Committee, Faculty of Engineering, Islamic University in Al-Madinah, Al-Madinah Al-Munawarah, Saudi Arabia, Jan. 2017- June 2017.
- Chairman, Alumni Affairs Committee, Faculty of Engineering, Islamic University in Al-Madinah, Al-Madinah Al-Munawarah, Saudi Arabia, Oct. 2016- June 2017.
- Member, Human Resources and Development Committee, Faculty of Engineering, Islamic University in Al-Madinah, Al-Madinah Al-Munawarah, Saudi Arabia, Oct. 2016- Feb. 2017.
- Member, Student Academic Advising Committee, Faculty of Engineering, Islamic University in Al-Madinah, Al-Madinah Al-Munawarah, Saudi Arabia, Sept. 2017- 2020.
- Member, Summer Training Committee, Department of Electrical Engineering, Faculty of Engineering, Islamic University in Al-Madinah, Al-Madinah Al-Munawarah, Saudi Arabia, Sep. 2020- April 2021.

## Research Projects

- BCI-control using EEG of smart home.
- BCI driver drowsiness detection using EEG.
- Prosthetic arm control using EEG and BCI.

## Awards and Honors

1. *Best Paper Award by The International Conference on Wireless Networks and Mobile Communications (WINCOM). Fez, Morocco, October 2016.*

## Publications:

### Academic Journals

1. Al-Canaan A., Chakib H., “**Performance Evaluation of Scalograms and 1-D Wavelet EEG Classifiers for Prosthetic Control System Optimisation**”, *Multi-Knowledge Electronic Comprehensive Journal For Education And Science Publications (MECSJ)*. Vol. 50, No. 1, January 2022.
2. Al-Canaan A., Chakib H., Uzair. M., Toor S., Al-Khatib A. and Sultan M., “**BCI-Control and Monitoring System for Smart Home Automation Using Wavelet Classifiers**”, *IET Signal Processing*. September 2021, (DOI: <https://doi.org/10.1049/sil2.12080>), URL: <https://ietresearch.onlinelibrary.wiley.com/doi/abs/10.1049/sil2.12080>.
3. Al-Canaan A. and Uzair. M. “**Dual-Channel EEG Acquisition Circuit for Vehicular Safety System Based upon Brain-Computer Interface (BCI)**”, *The Journal of Engineering, Science and Computing (JESC)*. Vol. 2, No. 2, December 2020.
4. Al-Canaan A. and A. Khoumsi A., “**Towards Designing High-Performance RESTful Multimedia Web Services on FPGA**”. *Journal of Advances in Technology and Engineering Research (JATER)*, 2018, 4(3): 111-117, (DOI:10.20474/jater-4.3.2, Corpus ID: 203557713).
5. A. Al-Canaan and A. Khoumsi, “**Multimedia Web Services Performance: Analysis and Quantification of Binary Data Compression**”. *Journal of Multimedia (JMM)*, Vol. 6, No. 5, October 2011, pp. 447-457.
6. A. Al-Canaan and A. Khoumsi. “**Cross-platform Approach to Advanced IP-Telephony Services using JAIN-SIP**”, *Journal of Networks*, vol. 5(7), July 2010, pp. 808–814.

### Conference Proceedings

1. A. Al-Canaan and A. Khoumsi, “**Towards Designing High-Performance RESTful Multimedia Web Services on FPGA**”. In conference proceedings, *International Conference on Computer, Automation, Engineering and Technology (CAET-2018)*, Vol. 01, Issue. 06, 4-5 Aug. 2018, pp. 14.
2. A. Khoumsi, A. Jaramillo and A. Al-Canaan, *User Driven Policy for Selecting Wireless Communication Technologies in Intelligent Transportation Systems. The International Conference on Wireless Networks and Mobile Communications (WINCOM)*. Fez, Morocco, October 2016. Best Paper Award.

3. A. Al-Canaan and A. Khoumsi, “ *The Impact of Binary Compression on QoS and Performance of SOAP and RESTful Multimedia Web Services* ”, Mosharaka International Conference on Wireless Communications and Mobile Computing (MIC-WCMC2011), Istanbul, Turkey: 3-5 June 2011, pp. 77-83.
4. A. Al-Canaan and A. Khoumsi, “ *Performance Enhancement of Image-Retrieval Web Services Through Image Dimensional Optimisation* ”, Mosharaka International Conference on Wireless Communications and Mobile Computing (MIC-WCMC2011), Istanbul, Turkey: 3-5 June 2011, pp. 45-50.
5. A. Al-Canaan and A. Khoumsi, “ *Analysis and Quantification of Multimedia Web Services Performance Utilising Binary Data Image Compression* ”, in *The Third Mosharaka International Conference on Communications, Networking and Information Technology (MIC-CNIT 2009)*, December 2009, pp. 75–80.
6. A. Al-Canaan and A. Khoumsi, “ *Advanced IP-Telephony Service Creation using JAIN-SIP API: cross-platform approach* ”, in *Mosharaka International Conference on Communications, Networking and Information Technology (MIC-CNIT 2008)*, Amman, Jordan, Dec. 2008, pp. 46–51.

### Book Chapters

1. Amer Al-Canaan, *Book Chapter: "Telecommunications Protocols"*, in book *TELECOMMUNICATION SYSTEMS*, ISBN 978-1-78984-294-4, Oct. 2019, Publisher, IntechOpen.

### Seminars Given

- Electric Circuit Simulation series (3 seminars/workshops): April 2017.
- Electric Circuit Simulation series (3 seminars/workshops): Nov. 2017.
- Renewable Energy Sources and their applications: May 2017.
- Matlab and Octave (4-session hands-on workshop): Feb. 2018.
- Searching the Saudi Digital Library and the library of the Islamic University: Feb. 2018.
- Design on FPGA (Jan. 2019).
- Introduction to Python programming using PyCharm (Sept. 2019, 2020).
- Introduction to Typesetting Research Papers Using LATEX (workshop, Nov. 2020)

## Courses Taught

Courses taught at the undergraduate level (Jadara University, Faculty of Engineering, Irbid, Jordan)

Course Code	Course Title
701454	Digital Signal Processing
703548	Water Desalination using Solar Energy
703435	Energy and the Environment
703461	Energy Storage and Legislations

Courses taught at the undergraduate level (Islamic University in Al-Madinah, Faculty of Engineering, Al-Madinah Al-Munawwarah, Saudi Arabia)

Course Code	Course Title
EE 497, 498	Senior Design Project I, II
EE 311	Electronics II
EE 447	Power Systems Operation and Control
ENGR 203	Scientific Computing Languages
ENGR 203	Power systems I
EE 3361	Digital Logic Design
EE 361	Microprocessors
EE 471	Digital Signal Processing
EE 201	Electric Circuits I
ENGR 3020	Creativity in Engineering Design
ENGR 202	Probability and Statistics for Engineers

**Courses taught at the graduate level (University of Sherbrooke, Faculty of Engineering, Sherbrooke, Canada)**

Course Code	Course Title
GEI 766	Components of Computer Networks

**Courses taught at the undergraduate level (University of Sherbrooke, Faculty of Engineering, Sherbrooke, Canada)**

Course Code	Course Title
GIF 310	Computer Architecture and Organisation (RISC)
GIF 362	Discrete Mathematics IV
GIF 331	Computer Networks and Communications' Protocols
GEN 220	Combinatorial Digital Logic Design
GEN 225	Sequential Digital Logic Design
GIF 361	Active Filters Design
GIF 340	Elements of Compilers
GIF 360	Probability and Modeling of Discrete Systems
GEN 441	Mechanics for Engineers
GEN 225	Sequential Logic design
GEN 441	Mechanics for Engineers
GEI 201	Design of Logic Circuits
GEL 320	Analogue Electronics II
GIF 340	Elements of Compilers
GIF 201	Design of a digital system (project)