

Dr Sherif Welsen

**Assistant Professor in Electrical and Electronic Engineering
Global Faculty Ambassador**

**Admission Tutor
Career and Industrial Engagement Officer
Marketing and Recruitment Coordinator**

Qualifications

PhD in Electronics and Electrical Communication Engineering, Ain-Shams University, Cairo, Egypt

MSc Electronics and Communication Engineering, The Arab Academy for Science and Technology and Maritime Transport, Cairo, Egypt

BSc Electrical and Electronics Engineering, Benha University, Benha Egypt

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Biography

Sherif obtained his Bachelor of Engineering degree in 2000 from BHIT. He worked in the industry on Fire Alarm systems, testing, and commissioning electromechanical projects. He joined the Arab Academy for Science and Technology and Maritime (AAST) in 2003 for his Masters Degree in Electronics and Telecommunications Engineering. In 2006 he obtained his Masters degree of science and was ranked top of his class. He then joined Ain-Shams University, Faculty of Engineering, Electronics and Electrical Communications Eng. Dpt. where, he got his PhD on Jan 2010. His research focused on Software Defined Radios in wireless communication and in particular on "generic low power FPGA implementation of coding schemes for emerging wireless standards".

In 2004, he worked as a lecturer assistant at Modern Academy for Engineering and Technology, and as ECE Assistant Professor from 2010 to 2011. He joined Nile University, Nanoelectronics Integrated Systems Centre 'NISC' in Jan 2009. He also had a position as a Research Scientist at Signal Processing Lab, Dpt. of Electronics and Electrical Communications Eng. at Ain-Shams University. Dr Welsen worked as a Research Fellow on both fabrication and application modules with, Kuang-Chi Institute of Advanced Technologies, Shenzhen, from 2011 to 2013. Starting November 2013, he is with dpt. of EEE, Faculty of Science and Engineering, University of Nottingham Ningbo campus.

He is involved in Cognitive radios, SDRs, VLSI, VHDL for FPGA and Digital Signal Processing research. His technical interests include reconfigurable radios, embedded systems, computer architecture and digital VLSI.

Teaching

Taught modules in UNNC:

- **Digital Signal Processing for Telecommunication, Multimedia and Instrumentation (H64DSP)**
- **HDL for Programmable Logic (H64HPL)**
- **Digital Communications (H63DCM)**
- **Embedded Computing (H63ECH)**
- **Digital VLSI (H63VLS)**
- **Telecommunication Electronics (H63TCE)**

Other previously taught modules:

- **Advanced Digital Communication Systems**
- **Information Theory and Coding Techniques**
- **VHDL and FPGA**
- **Microprocessors-based Systems and Interfacing**
- **Microcontrollers-based Systems**
- **Computer Architecture**
- **Computer Organization**

Major research interests

Digital Communications, Wireless Sensor Networks, Error Control Coding, FPGAs, VHDL, Computer Architecture/Organization, Low-Power Digital VLSI, Microprocessors and Interfacing, Software Defined Radios

Professional membership

- Member, IEEE
- Member, IET
- Technical Program Committee (TPC) member of 18th TELEcommunications FORum, TELFOR 2010, Belgrade, Serbia.
- Scientific Committee member of 18th TELEcommunications FORum, TELFOR 2010, Belgrade, Serbia.
- Technical Program Committee (TPC) member of 13th International Conference on Advanced Communications Technology, ICACT 2011, Gangwon-Do, Korea.

Peer-reviewed Publications

- Zhuge Yan, **Sherif Welsen**, "*Predictive Enhanced Modified Orthogonal Search Algorithm for Wireless Video Sensor Network*", 2016 Asia Pacific Conference on Multimedia and Broadcasting, Bali, November 2016, pp. 60-65, 2016.
- **Sherif Welsen Shaker**, "*DVB-RCS: Efficiently Quantized Turbo Decoder*", ICACT Transactions on Advanced Communications Technology, (TACT), vol. 3, Issue 2, pp. 426-433, March 2014.

- **Sherif Welsen Shaker**, “*Reduced Complexity DVB-RCS Turbo Decoder*”, International Conference on Advanced Communications Technology, IEEE ICACT 2012, Phoneix Park, Korea (South), February 22-25, 2012. *The paper has received the outstanding paper award.*
- Pie Xiao, Wu Yin, Rahim Tafazolli, and **Sherif Welsen Shaker**, “*Enhanced Subspaced Approach to Interference Mitigation*”, International Symposium on Communications and Information Technologies, IEEE ISCIT 2011, Hangzhou, P.R. China, October 12-14, 2011.
- **Sherif Welsen Shaker**, “*DVB-S2 LDPC Finite-Precision Decoder*”, International Conference on Advanced Communications Technology, IEEE ICACT 2011, Phoneix Park, Korea (South), February 13-16, 2011.
- **Sherif Welsen Shaker**, and Salwa Hussien El Ramly. “*Design and Implementation of Adaptive Turbo Encoder for Quantized Software Defined Low-Power DVB-RCS Radios*”, TELFOR Journal, Vol. 2, No. 4, 2010, pp.68 - 73, ISSN: 1821-3251.
- **Sherif Welsen Shaker**, Salwa Hussien El Ramly, and Khaled Ali Shehata. “*FPGA Implementation of a Reconfigurable Viterbi Decoder for WiMAX Receiver*”, IEEE ICM 2009, Marrakech, Morocco, 19-22 December 2009.
- **Sherif Welsen Shaker**, Salwa Hussien El Ramly, and Khaled Ali Shehata. “*Design and Implementation of Adaptive Low-Power Turbo Encoder for DVB-RCS Software Radio*”, Telecommunication Forum 2009 ‘TELFOR09’2009, Belgrade, Serbia.
- **Sherif Welsen Shaker**, Salwa Hussien El Ramly, and Khaled Ali Shehata. “*Design and Implementation of Low-Power Viterbi Decoder for Software-Defined WiMAX Receiver*”, Telecommunication Forum 2009 ‘TELFOR09’2009, Belgrade, Serbia.
- **Sherif Welsen Shaker**, Salwa Hussien El Ramly, and Khaled Ali Shehata. “*FPGA Implementation of a Configurable Viterbi Decoder for Software Radio Receiver*”, IEEE AUTOTESTCON 2009, Anaheim, California, USA, 14-17 September 2009.
- **Sherif Welsen Shaker**, Salwa Hussien El Ramly, and Khaled Ali Shehata. “*Implementation of a Generic-Configurable Viterbi Decoder on FPGA for Software Defined Radio Receiver*”, IEEE Regional Symposium on Microelectronics, RSM 2009, Kota Bahru, Malaysia, 10-12 August 2009.
- **Sherif Welsen Shaker**, Salwa Hussien El Ramly, and Khaled Ali Shehata. “*FPGA Implementation of a Direct Digital Synthesizer for Carrier Phase Synchronizer in Software Radio Receiver*”, 6th International Conference on Electrical Engineering ICEENG 2008, Military Technical College, Kobry El-Kobbah, Cairo Egypt, 27-29 May 2008.
- Atalla Ibrahim Hashad, **Sherif Welsen Shaker**, Mohamed Abu El-Dahab, and Khaled Ali Shehata. “*Design and Implementation of Carrier Phase Synchronization Module for Software*

Defined Radio on FPGA", 5th International Workshop on Signal Processing and its Applications WoSPA 2008, University of Sharjah, Sharjah, U.A.E., 18-20 March 2008.

- Atalla Ibrahim Hashad, Khaled Ali Shehata, Mohamed Abu El-Dahab, and **Sherif Welsen Shaker**, "*FPGA Implementation of Direct Digital Synthesizer for Software Radio Receiver*", First Workshop on VLSI Technology and EDA Tools, Arab Academy for Science and Technology, College of Engineering and Technology, Cairo, Egypt, December 4, 2005.
- Khaled Ali Shehata, Atalla Ibrahim Hashad, Mohamed Abu El-Dahab, and **Sherif Welsen Shaker**, "*Carrier Phase Synchronization for Software Radio Receiver*", Sci. Bull. Fac. Eng. Ain Shams Univ., Vol. 40, No. 3, September 30, 2005.

Invited lectures

Forward Error Correction In Digital Communication Transceiver, Chongqing University, November 2016.

Research Grants

- ❖ **Grant 1: Life Cycle-5, Gearing up for rural education.**
 - ◆ **Funding Agency:** various.
 - ◆ **Participants:** Assoc. Prof. Rosangela Tenorio, Assist. Prof. Tong Yang.
 - ◆ **Budget:** 700,000 RMB.
 - ◆ **Duration:** 1-year.
- ❖ **Grant 2: Multi-Disciplinary Structural Health Monitoring using GNSS and Frequency Analysis.**
 - ◆ **Funding Agency:** The University of Nottingham Ningbo China (Sandpit project).
 - ◆ **Participants:** Prof. Gethin ROBERTS, Assist. Prof. Julien Le Kernec.
 - ◆ **Budget:** 100,000 RMB.
 - ◆ **Duration:** 1-years.
- ❖ **Grant 3: Self Sensing Composite Smart Material Based on Heterogeneous Integration Technology.**
 - ◆ **Funding Agency:** Peacock Plan of Shenzhen Government, China.
 - ◆ **Participants:** Assoc. Prof. Fabrizia Ghezzi, Assoc. Prof. Arnold Abramov.
 - ◆ **Budget:** 40,000,000 RMB (6.3 Million USD), annually.
 - ◆ **Duration:** 5-years.
- ❖ **Grant 4: Co-existence between cognitive radio and current 3G, 4G communication.**
 - ◆ **Funding Agency:** National Telecom Regulatory Authority, (NTRA), Cairo, Egypt.
 - ◆ **Participants:** Prof. Salwa Elramly, ASU. (PI), Assist. Prof. Sherif Welsen (Co-PI), Assist. Prof. Maha ElSabrouty, Assist. Prof. Fatma Newegy.
 - ◆ **Budget:** 3,000,000 EGP (500,000 USD).

- ◆ **Duration:** 2-years.

Other Research Projects

- **Developing SmartCam for visible light key recognition.**
- **Innovative modified Manchester Coding scheme for smart phone-based visible light access control.**
- **Design and Implementation of a remote monitoring using a low-power wireless sensor network.**

Electronic System Design Group Leader

Current Undergrad Student members:

- **Xindi HUANG (year 3)**
- **Ang LI (year 3)**
- **Yi REN (year 2)**
- **Yiran WANG (year 3)**

Previous Student members:

- **Jianyi CHENG (UK Campus)**

Laboratories Establishment

- **Wireless Research Platform Lab., Communications and Signal Processing Lab., Faculty of Engineering, Ain-Shams University.**
- **Embedded Microprocessors/Microcontrollers-Based Systems Laboratory for B.Sc. students, (design, implementation and supervision), Modern Academy for Engineering and Technology, Cairo, Egypt.**

PhD Students

Zhuge YAN
Haonan ZHOU