

# Waleed Eid Al-Hanafy

*Curriculum Vitae*

Dept. of Electronics & Commun. Eng.  
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*Seek every possible means to make students at all levels of study aware that research, teaching and professional practice are interdependent*

## Personal Information

<b>Job Title</b>	Lecturer
<b>Affiliation</b>	Faculty of Electronic Engineering, Menoufia University
<b>Marital Status</b>	Married with 3 children
<b>Date of Birth</b>	December 1973
<b>Place of Birth</b>	Elbagour, Menoufia, Egypt
<b>Nationality</b>	Egypt

## Research Interests

My research interests are mainly in the signal processing for communications in particular precoding and equalisation methods of MIMO systems, adaptive power/bit loading approaches, Multi-User MIMO, OFDM systems, and resource allocation of wireless communication systems.

## Education & Qualifications<sup>1</sup>

Institution	Location	Dates	Award Certificate
EEE Department, Strathclyde University	Glasgow, UK	2007 – 2010	PhD
EEE Department, Liverpool University	Liverpool, UK	2006 – 2007	First-year PhD
Faculty of Electronic Engineering, Menoufia University	Menouf, Egypt	1999 – 2002	MSc in Electronic Eng. (Communications)
Faculty of Electronic Engineering, Menoufia University	Menouf, Egypt	1998 – 1999	MSc Courses
Faculty of Electronic Engineering, Menoufia University	Menouf, Egypt	1991 – 1996	BSc in Electronic Eng. (Communications)

## Work Experience

Institution/Address	Job Title	Dates	Brief Description
Faculty of Elec. Eng., Menoufia University, Menouf, Egypt	Lecturer	2011 – date	Teaching UG students courses and supervisory of postgraduate students
EEE Dept., Strathclyde University, Glasgow, Scotland, UK	Teaching Assistant	2007 – 2010	Teaching assistant for UG students in CAD, Integrated Studies, and VHDL
EEE Dept., University of Liverpool, England, UK	Teaching Assistant	2006 – 2007	Teaching assistant for UG students in PSPICE
Faculty of Elec. Eng., Menoufia University, Menouf, Egypt	Assistant Lecturer	2002 – 2006	* Teaching theoretical and experimental courses for UG students
Faculty of Elec. Eng., Menoufia University, Menouf, Egypt	Demonstrator	1996 – 2002	* Teaching theoretical and experimental courses for UG students

<sup>1</sup>In the RAE 2008, EEE Dept. at Strathclyde University was placed 3rd in the UK and 1st in Scotland by a large margin when considering both size and quality

★ UG courses include:

- Circuit Theory
- Principles of Electronics
- Electronics Engineering
- Fields and Waves
- Electronic and Electrical Circuits
- Network Planning
- Acoustics
- Communications Lab.
- Digital Communication Lab.
- Electronics and Control Lab.
- Microwave Lab.
- Electrical Drawing
- Engineering Drawing
- Digital Signal Processing, DSP

### Academic Participation

Member of IEEE and EURASIP Societies, TPC member of Mosharaka for Researches and Studies - Conferences, and a reviewer of many conferences and journals.

- **PhD thesis title**  
“Non-Linear Precoding and Equalisation for Broadband MIMO Channels”
- **MSc thesis title**  
“Teletraffic Analysis of the Next-Generation Integrated Terrestrial/Satellite Mobile Radio Networks”
- **BSc project title**  
“Multichannel Optical Fiber Communication System”
- **Supervision**  
Supervise a PhD student and Engineering final-year student projects on:  
1- Stratospheric wireless communications                      2- Mobile Communications
- **Reviewing**  
Reviewer of some conferences and journals including: 17th EUSIPCO Conference, Mosharaka International Conferences, MIC, Journal of Communication and Computer, JCC, and IEEE Transactions on Vehicular Technology
- **Conferences**  
Participate and attend some international conferences including:
  - 19th European Signal Processing Conference, *EUSIPCO 2011*, Barcelona, Spain, Aug.-Sep. 2011, 18th *EUSIPCO 2010*, Aalborg, Denmark, August 2010, and 17th *EUSIPCO 2009*, Glasgow, UK, August 2009 (organising & reviewing committee)
  - 4th Microwave & Radar Week, *MIKON 2010*, Vilnius, Lithuania, June 2010
  - 3rd IEEE International Workshop on Computational Advances in Multi-Sensor Adaptive Processing, *CAMSAP 2009*, Aruba, Dutch Antilles, December 2009
  - 3rd Mosharaka International Conference on Communications, Computers and Applications, *MIC-CCA 2009*, Amman, Jordan, October 2009
  - 42nd Asilomar Conference in Signal, Systems and Computers, *ACSSC 2008*, CA, USA, October 2008
- **Awards**
  - International Travel Grant from the Royal Academy of Engineering, UK, May 2010
  - Best Paper Award at MIC-CCA Conference, October 2009
  - Scholarship from Menoufia University and Ministry of Higher Education and State for Scientific Research, Egypt to study PhD in the UK from 2006 to 2010

### Training and Skills

- **Training**
  - Developing local talent in technology, CISCO Systems, Inc., Cairo, Egypt, Dec. 2010
  - Writing and presenting research intensive course, Strathclyde University, UK, Jan. 2008
  - Research skills workshop, Liverpool University, UK, Nov. 2006

- **Skills**

- Languages: Arabic - mother tongue, English - fluent
- Programing: MATLAB, PC Tools: MS Office, Lyx, L<sup>A</sup>T<sub>E</sub>X
- Other soft skills: AutoCAD drawing, PSPICE, VHDL, Ansoft HFSS package

## List of Publications

### Book:

- *Precoding of Broadband Multiple-Input Multiple-Output Systems: Non-Linear Approaches*. VDM Verlag Dr. Müller, Jan. 2011, available online at: <http://www.amazon.co.uk/Precoding-Broadband-Multiple-Input-Multiple-Output-Systems/dp/3639324935>

### Journal:

- **F. S. Al-Kamali, M. I. Dessouky, B. M. Sallam, F. Shawki, W. Al-Hanafy and F. E. Abd El-Samie**, “Joint Low-Complexity Equalization and Carrier Frequency Offsets Compensation Scheme for MIMO SC-FDMA Systems,” accepted for publication in the *IEEE Transactions on Wireless Communications*
- **Waleed Al-Hanafy and Stephan Weiss**, “Suboptimal Greedy Power Allocation Schemes for Discrete Bit Loading,” invited paper for *IET Communications Journal*, submitted Dec. 2011
- **Waleed Al-Hanafy and Stephan Weiss**, “Discrete Rate Maximisation Power Allocation with Enhanced BER,” invited paper for *IET Communications Journal*, submitted Dec. 2011

### Conference:

- **Waleed Al-Hanafy and Stephan Weiss**, “An Adaptive Modulation Precoding Scheme for Mean BER Minimisation of ISI MIMO Channels,” *19th European Signal Processing Conference, EUSIPCO 2011*, Barcelona, Spain, Aug.-Sep. 2011
- **Najib A. Odhah, Moawad I. Dessouky, Waleed Al-Hanafy, and Fathi E. Abd El-Samie**, “An Improved Adaptive Transmission Technique for High Speed Communication Systems,” *6th International Computer Engineering Conference, ICENCO 2010*, Cairo, Egypt, December 2010
- **Najib A. Odhah, Moawad I. Dessouky, Waleed Al-Hanafy, and Fathi E. Abd El-Samie**, “Low Complexity Transmission Scheme for Multiple Input Multiple Output Communication Systems,” *1st International Conference on Electrical and Computer Systems Engineering, ECSE'10*, Cairo, Egypt, November 2010
- **Waleed Al-Hanafy, Mohamed Nuri Hussin, and Stephan Weiss**, “Incremental Rate Maximisation Power Loading with BER Improvements,” *18th European Signal Processing Conference, EUSIPCO 2010*, Aalborg, Denmark, August 2010
- **Waleed Al-Hanafy and Stephan Weiss**, “Reduced Complexity Schemes to Greedy Power Allocation for Multicarrier Systems,” *18th International Conference on Microwave, Radar and Wireless Communications, MIKON 2010*, Vilnius, Lithuania, June 2010
- **Waleed Al-Hanafy and Stephan Weiss**, “Trade-Off Between Complexity and BER Performance of a Polynomial SVD-Based Broadband MIMO Transceiver,” *27th National Radio Science Conference, NRSC 2010*, Menouf, Egypt, March 2010
- **Waleed Al-Hanafy and Stephan Weiss**, “Greedy Power Allocation for Multicarrier Systems with Reduced Complexity,” *27th National Radio Science Conference, NRSC 2010*, Menouf, Egypt, March 2010
- **Waleed Al-Hanafy and Stephan Weiss**, “Comparison of Precoding Methods for Broadband MIMO Systems,” *3rd IEEE International Workshop on Computational Advances in Multi-Sensor Adaptive Processing, CAMPSAP 2009*, Aruba, Dutch Antilles, December 2009
- **Waleed Al-Hanafy and Stephan Weiss**, “A New Low-Cost Discrete Bit Loading using Greedy Power Allocation,”<sup>2</sup> *3rd Mosharaka International Conference on Communications, Computers and Applications, MIC-CCA 2009*, Amman, Jordan, October 2009
- **Waleed Al-Hanafy and Stephan Weiss**, “Sum-Rate Maximisation Comparison using Incremental Approaches with Different Constraints,” *3rd Mosharaka International Conference on Communications, Computers and Applications, MIC-CCA 2009*, Amman, Jordan, October 2009

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<sup>2</sup>This paper won the “Best Paper Award” at the MIC-CCA 2009 Conference

- **Stephan Weiss, Paul Yarr, Waleed Al-Hanafy, Andrew P. Millar, and Chi-Hieu Ta**, “An Over-sampled Modulated Filter Bank Transmultiplexer With Precoding and Equalisation,” *3rd Workshop on Power Line Communications*, Udine, Italy, October 2009
- **Waleed Al-Hanafy and Stephan Weiss**, “Efficient Tomlinson-Harashima Precoding Ordering using QR Decomposition,” *17th European Signal Processing Conference, EUSIPCO 2009*, Glasgow, UK, August 2009
- **Samir Bendoukha, Waleed Al-Hanafy, and Stephan Weiss**, “A Concurrent Blind Receiver for STBC over Doubly Dispersive Channels,” *17th European Signal Processing Conference, EUSIPCO 2009*, Glasgow, UK, August 2009
- **Waleed Al-Hanafy, Andrew P. Millar, Chi Hieu Ta, and Stephan Weiss**, “Broadband SVD and Non-Linear Precoding and Equalisation Applied to Broadband MIMO Channels,” *42nd Asilomar Conference on Signals, Systems and Computers, ACSSC 2008*, Pacific Grove, CA, USA, October 2008
- **Sami El-Dolil, Mostafa Nofal, and Waleed Al-Hanafy**, “An Integrated Space/Terrestrial Cellular Architecture with Different Priority Schemes for Global Mobile Communications,” *55th IEEE Vehicular Technology Conference VTC Spring 2002*, Birmingham, AL, USA, May 2002

## References

Available on request