

## Maher Khaliel

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CONTACT INFORMATION	ID4us GmbH, Bismarckstrasse 120 47057, Duisburg, Germany Duisburg-Essen University 47057, Duisburg, Germany Benha University, Benha 13512, Egypt	+4915143302122 maher.khaliel@id4us.de maher.mohamed@uni-due.de  maher.khalil@bhit.bu.edu.eg
RESEARCH INTERESTS	Chipped and Chipless RFID Systems, Microwave Circuits, Microwave Sensors, Microstrip Antennas, Small Antennas, Antenna Arrays, RF-Fronted, Massive MIMO Beamforming, Full Duplex Systems,..	
EDUCATION	<b>University of Duisburg-Essen</b> , Duisburg, Germany  Ph.D. in Electrical Engineering, Institute of Digital Signal Processing, December 2016. <ul style="list-style-type: none"><li>• Thesis: <i>Realistic Frequency Coded Chipless RFID: Physically Modulated Tags and Refectarray Readers</i></li><li>• Advisor: Prof. Dr.- Ing. Thomas Kaiser</li><li>• Grade: 1.0</li></ul> <b>Benha university</b> , Kalyobiya, Egypt  M.Sc. in Electrical Engineering, Benha Faculty of Engineering, January 2012. <ul style="list-style-type: none"><li>• Thesis: <i>Optimizing the Performance of Microstrip Filters</i></li><li>• Advisor: Prof. El-sayed Mahmoud El-Rabaie</li><li>• GPA: 4.0/4.0</li></ul> B.Sc. in Electrical Engineering, Industrial Electronics, Benha Faculty of Engineering, July 2007.	
INDUSTRIAL EXPERIENCE	<b>ID4us GmbH</b> , Radio Frequency Research and Development Engineer <b>Smart Communication</b> , Technical Consultant <b>Computer Simulation Technology (CST)</b> , Customer Technical Support, Head of Software Quality Assurance Department. <b>Vodafone Egypt</b> , Access Point Support Engineer <b>Benha Faculty of Engineering, Benha University</b> , Teaching Assistant, Supporting Industrial Projects. <b>Egyptian Maintenance Company (EMC)</b> , Electronic Maintenance and Installation Engineer <b>ERTU</b> , Radio and Television Broadcasting System Engineer	May 2016 till now April 2013 to December 2014 April 2013 to December 2014 July 2011 to February 2012 March 2009 to April 2013 October 2009 to May 2011 July 2006 to November 2006

RESEARCH  
EXPERIENCE

**Research Assistant** (Chipless RFID Systems) April 2013 to December 2016  
Institute of Digital Signal Processing, Duisburg-Essen university,  
System Simulation and Measurement Group, ID4EGYPT Project  
Supervisor: Prof. Thomas Kaiser

**Research Assistant** March 2009 to April 2013  
Division of Electrical and Telecommunication Engineering,  
Benha University

- Topic: *RFID Antennas for Readers and Tags*
- Topic: *Microstrip Antennas for Detecting Buried Land Mines*
- Topic: *Microwave Filters based on Microstrip and Metamaterial Structures*
- Topic: *Microwave Low Noise and Power Amplifier Design*

SCIENTIFIC  
PUBLICATIONS

• Journal Papers

1. **M. Khaliel**, A. El-Awamry, A. Fawky, and T. Kaiser, “ **A Novel Design Approach for Co/Cross-Polarizing Chipless RFID Tags of High Coding Capacity**, ” *IEEE Journal of Radio Frequency Identification* ( Volume: 1, Issue: 2) Oct. 2017.
2. **M. Khaliel**, A. El-Awamry, A. Fawky, and T. Kaiser, “ **Long Reading Range for the Frequency Coded Chipless RFID System Based on Reflectarray Antennas**, ” *International Journal of Microwave and Wireless Technologies (Accepted)*, Feb. 2018.
3. Y. Gao, **M. Khaliel**, Feng Zeng, and T. Kaiser, “ **Rotman Lens Based Hybrid Analog-Digital Beamforming in Massive MIMO Systems: Array Architectures, Beam Selection Algorithms and Experiments**, ” *IEEE Transactions on Vehicular Technology* ( Volume: 66, Issue: 10) Oct. 2017.
4. A. El-Awamry, **M. Khaliel**, A. Fawky, and T. Kaiser, “ **Adaptive Spectrum Scanning Techniques for Reducing the Identification Time of the Frequency Coded Chipless RFID System**, ” *Transactions on Emerging Telecommunications Technologies* ( DOI: 10.1002/ett.3173) March 2017.
5. M. Elhadidy, A. El-Awamry, **M. Khaliel**, A. Fawky, and T. Kaiser, “ **Real-World Testbed for Multi-Tag UWB Chipless RFID System based on a Novel Collision Avoidance MAC Protocol**, ” *Transactions on Emerging Telecommunications Technologies* ( DOI: 10.1002/ett.3124) Oct. 2017.

• Conference Papers

1. **M. Khaliel**, A. El-Awamry, A. Fawky, and T. Kaiser, “ **Long reading range chipless RFID system based on reflectarray antennas**, ” *European Conference on Antennas and Propagation (EuCAP), Paris, France, 2017*.
2. **M. Khaliel**, A. Fawky, A. El-Awamry, Abd-Elhady Mahmoud, and T. Kaiser, “ **Printable, high coding capacity chipless RFID tags for low-cost item tagging**, ” *IEEE International Conference on Networking, Sensing, and Control (ICNSC), Calabria, Italy, 2017*.
3. A. Fawky, A. El-Awamry, **M. Khaliel**, and T. Kaiser, “ **Novel notch detection techniques for Frequency Coded chipless RFID**, ” *IEEE International Conference on Networking, Sensing, and Control (ICNSC), Calabria, Italy, 2017*.
4. A. El-Awamry, A. Fawky, **M. Khaliel**, and T. Kaiser, “ **A novel adaptive spectrum scanning technique for reducing the identification time of the UWB chipless RFID system**, ” *IEEE International Conference on Networking, Sensing, and Control (ICNSC), Calabria, Italy, 2017*.

5. A. Fawky, M. Khaliel, A. El-Awamry, and T. Kaiser, “ **Frequency coded chipless RFID tag localization using multiple antennas,** ” *European Conference on Antennas and Propagation (EuCAP), Paris, France, 2017.*
6. A. El-Awamry, M. Khaliel, A. Fawky, and T. Kaiser, “ **A novel multi-tag identification technique for frequency coded chipless RFID systems based on look-up-table approach,** ” *European Conference on Antennas and Propagation (EuCAP), Paris, France, 2017.*
7. Y. Gao, M. Khaliel, and T. Kaiser, “ **Wideband hybrid analog-digital beamforming massive MIMO systems based on Rotman lens,** ” *IEEE International Conference on Communication Systems (ICCS), Shenzhen, China, 2016.*
8. A. El-Awamry, M. Khaliel, A. Fawky, M. El-Hadidy, and T. Kaiser, “ **Novel notch modulation algorithm for enhancing the chipless RFID tags coding capacity,** ” *IEEE International Conference on RFID, San Diego, CA, 2015, pp. 25-31.*
9. A. Fawky, M. Khaliel, A. El-Awamry, M. El-Hadidy, and T. Kaiser, “ **Novel pseudo-noise coded chipless RFID system for clutter removal and tag detection,** ” *IEEE International Conference on RFID, San Diego, CA, 2015, pp. 100-104.*
10. K. Hasan, M. Khaliel, M. El-Hadidy, and T. Kaiser, “ **Design an adaptive electronically beamsteering reflectarray antenna for RFID systems,** ” *IEEE International Symposium on Antennas and Propagation USNC/URSI National Radio Science Meeting, Vancouver, BC, 2015, pp. 2157-2158.*
11. M. Khaliel, A. El-Awamry, A. Fawky, M. El-Hadidy, and T. Kaiser, “ **A novel co/cross-polarizing chipless RFID tags for high coding capacity and robust detection,** ” *IEEE International Symposium on Antennas and Propagation USNC/URSI, National Radio Science Meeting, Vancouver, BC, 2015, pp. 159-160.*
12. M. Khaliel, M. El-Hadidy, and T. Kaiser, “ **Printable depolarizing chipless RFID tag based on DGS resonators for suppressing the clutter effects,** ” *European Conference on Antennas and Propagation (EuCAP), Lisbon, 2015, pp. 1-5.*
13. M. El-Hadidy, A. El-Awamry, A. Fawky, M. Khaliel, and T. Kaiser, “ **A novel collision avoidance MAC protocol for multi-tag UWB chipless RFID systems based on Notch Position Modulation,** ” *European Conference on Antennas and Propagation (EuCAP), Lisbon, 2015, pp. 1-5.*
14. A. El-Awamry, M. Khaliel, A. Fawky, M. El-Hadidy, and T. Kaiser, “ **Novel adaptive sliding window algorithm reducing latency for multi-tag chipless RFID systems,** ” *International Symposium on Antennas and Propagation USNC/URSI, National Radio Science Meeting, Vancouver, BC, 2015, pp. 206-206.*
15. B. Nagy, A. Fawky, M. Khaliel, M. El-Hadidy, and T. Kaiser, “ **MISO beamforming for RFID systems via second-order cone programming,** ” *European Conference on Antennas and Propagation (EuCAP), The Hague, 2014, pp. 2808-2811.*
16. A. Fawky, M. Khaliel, M. El-Hadidy, and T. Kaiser, “ **UWB chipless RFID system performance based on real world 3D-deterministic channel model and ZF equalization,** ” *European Conference on Antennas and Propagation (EuCAP), The Hague, 2014, pp. 2808-2811.*

17. **M. Khaliel**, A. Fawky, M. El-Hadidy, and T. Kaiser, “ **UWB Reectarray antenna for chipless RFID applications**, ” *31st National Radio Science Conference (NRSC), Cairo, 2014*, pp. 17-20.
18. M. El-Hadidy, B. Nagy, A. Fawky, **M. Khaliel**, and T. Kaiser, “ **Evaluation of UWB chipless RFID system performance considering indoor multipath propagation channel and real world aspects**, ” *Progress In Electromagnetic Research (PIERS) Proceedings, Stockholm, August 12-15, 2013*, pp.616 - 620.
19. M. El-Hadidy, B. Nagy, **M. Khaliel**, A. Fawky, and T. Kaiser, “ **Novel Methodology for increasing the reading range of the UWB passive RFID chipless tags considering power regulations**, ” *Progress In Electromagnetic Research (PIERS) Proceedings, Stockholm, August 12-15, 2013*, pp.630 - 632.
20. S. EL-Rabaie, H. A. Sharshar, M. Yassien, and **M. Khaliel**, “ **Minutarized metamaterial narrow bandpass filters using CRLH transmission line CL loaded approach**, ” *Minoufia Journal of Electronic Engineering Research (MJEER), January 2012, Vol.22, No. 1*
21. S. EL-Rabaie, H. A. Sharshar, M. Yassien, and **M. Khaliel**, “ **Investigation to metamaterial transmission line filters based on the CL-loaded approach**, ” *Minoufia Journal of Electronic Engineering Research (MJEER), January 2012, Vol.22, No. 1.*

BOOKS

**M. Khaliel**, “ **Optimizing the Performance of Microstrip and Metamaterial Microwave Filters** ” *July 2012.*

AWARDS

Best Paper Award of the 15th IEEE International Conference on Communications Systems (**ICCS 2016**)

- Y. Gao, **M. Khaliel**, and T. Kaiser, “ **Wideband Hybrid Analog-Digital Beamforming Massive MIMO Systems Based on Rotman Lens** ”

Student Awards — Best paper award finalist (**EUCAP 2017**)

- **M. Khaliel**, A. El-Awamry, A. Fawky, and T. Kaiser, “ **Long Reading Range Chipless RFID System Based on Reflectarray Antennas** ”

Student Awards — Best paper award finalist (**EUCAP 2015**)

- M. El-HAdidy, A. El-Awamry, A. Fawky, **M. Khaliel** and, T. Kaiser, “ **A novel collision avoidance MAC protocol for multi-tag UWB chipless RFID systems based on Notch Position Modulation**”

Student Awards — Deutscher Akademischer Austauschdienst (DAAD), German Academic Exchange

- PhD. Student Scholarship 2013–2016
  - The Deutsch-Arabische Forschungspartnerschaft program grants PhD positions under ID4EGYPT project.

Student Awards — Duisburg-Essen University, Institute of Digital Signal Processing

- Doctoral Dissertation Fellowship 2016–2017
  - The Doctoral Dissertation Fellowship (DDF) program is intended to give the most accomplished final-year PhD candidates an opportunity to complete the dissertation within the 2016–16 academic year by devoting full-time effort to research and writing.

PRESENTATIONS Scientific Workshops  
• “ **Chipless RFID Future and Challenges**” 12-17 April 2015.  
*The 9th EUCAP, Lisbon, Portugal.*  
• “ **Chipless RFID System and Testbed**” 19-25 July 2015.  
*Radio Science Meeting (Joint with AP-S Symposium), USNC-URSI, Vancouver,  
BC, Canada.*

TEACHING Teaching Assistant at **Benha university** March 2009–2013  
EXPERIENCE  
• Microwave Engineering. (8<sup>th</sup> semester)  
• Field Theory. (4<sup>th</sup> semester)  
• Antennas and Wave Propagation. (8<sup>th</sup> Semester)  
• Microprocessor Based Systems. (6<sup>th</sup> Semester)  
• Microelectronic Circuits. (4<sup>th</sup> Semester)

HARDWARE AND Computer Programming:  
SOFTWARE SKILLS • C++, Java, C, Python, MATLAB, C#  
Network Certificates:  
• Cisco Certified Network Associate, CCNA Instructor, CCNP  
Simulation Softwares:  
• CST, HFSS, Microwave Design Studio (AWR), Advanced Design Studio (ADS)

#### REFERENCES

1. Prof. Dr.-Ing. Thomas Kaiser  
Head of the institute of Digital Signal Processing, Duisburg-Essen University,  
Germany.  
CEO of ID4us GmbH  
Email: thomas.kaiser@uni-due.de
2. Prof. Dr.-Ing. Klaus Solbach  
Senior Professor for RF Technology the institute of Digital Signal Processing,  
Duisburg-Essen University, Germany.  
Member in the consultancy committee at ID4us GmbH company.  
Email: klaus.solbach@id4us.de
3. Prof. Dr.-Ing. Han Vinck  
Full professor in Digital Communications at the University of Duisburg-Essen,  
Germany  
IEEE fellow for Contributions to Coding Techniques  
Email: han.vinck@uni-due.de
4. Prof. Hadia El-Hennawy  
Faculty of Engineering, Ainshams University, Egypt  
IEEE Egypt Section Vice-Chair and Prev. Dean, Faculty of Engineering Ainshams  
University  
Email: helhennawy@ieee.org
5. Prof. El-sayed Mahmoud El-Rabaie  
Faculty of Electronic Engineering, Menoufia, Egypt  
Vice Dean at Faculty of Electronic Engineering, Menoufia University  
Email: elsayedelrabaie@gmail.com
6. Prof. Abdelaziz Mitkees  
Military Technical College, Egypt  
Email: aamitkees@yahoo.com