

Omar A. Obeidat

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ACADEMIC PROFILE

Ph.D.-qualified Electrical Engineer with over 10 years of combined academic and industry experience in nondestructive evaluation, localization, and wireless communications. Strong publication record, interdisciplinary collaboration background, and a passion for student-centered teaching and curriculum development. Proven ability to bridge industry and academia to enhance engineering education

TEACHING & RESEARCH INTERESTS

IR Imaging, Non-Destructive Evaluation, Localization Technologies, Applied Electromagnetics, Wireless Communications, Image & Signal Processing.

EDUCATION

Wayne State University, Detroit, Michigan USA

Ph.D., Electrical Engineering, May 2021

GPA: 3.97/4.00

Thesis Title: "Flaw Characterization and Depth Profiling using Sonic IR NDE"

Advisor: Professor Xiaoyan Han

Relevant Coursework: Advanced Digital Image Processing, Non-Destructive Methods and Applications, Estimation and Detection, Information Theory, Fiber and Integrated Optics, Lasers for Medical Applications.

Leeds Beckett University, Leeds, Yorkshire UK

M.S., Mobile & Distributed Computer Networks, June 2012

Graduated with Distinction

Thesis Title: "Technology Convergence: Video over IP"

Advisor: Professor Colin Pattinson

Relevant Coursework: Network Management, Essentials of Computer Networks (CCNA-aligned), Voice over IP, Linux Essentials, Wireless Networking (CWNA-aligned)

Yarmouk University, Irbid, Jordan

M.S., Wireless Communication Engineering, August 2009

GPA: 89%.

Thesis Title: "The applications of Fiber Bragg Gratings for Dispersion Compensation and Pulse Compression"

Advisor: Professor Mohammad Bataineh

Relevant Coursework: Random Processes, Communication and Computer Networks, Numerical Analysis in Electromagnetics, Antennas, Advanced Digital Communications, Error Detection and Correction, Real-Time Signal Processing, Mobile Communication Systems

Jordan University of Science & Technology, Irbid, Jordan

B.S. Electrical Engineering – Communications and Electronics, August 2006

ACADEMIC EXPERIENCE

Wayne State University

Graduate Research Assistant, January 2019 – October 2019

- Conducted research on thermal imaging and non-destructive evaluation (NDE) systems.
- Designed and executed experiments and analyzed data for material flaw characterization
- Published research in peer-reviewed journals and conferences.
- Provided research guidance and mentorship to graduate students.

Wayne State University

Graduate Teaching Assistant, August 2015 – May 2016

- Supported instruction in:
 - Introduction to Microcomputers (LabVIEW-based programming and analysis)
 - Electrical Circuits (circuit theory and simulation)
 - Microcomputer-Based Instrumentation
- Delivered lab instruction, assessed assignments, and supported curriculum development

INDUSTRY EXPERIENCE

Ford Motor Company, MI, USA

System Architect, October 2019 – May 2025

- Led system design for vehicle location and geofence services integrating wireless communication, embedded systems, and cloud platforms
- Authored technical specifications aligned with safety and cybersecurity standards
- Collaborated with validation, modeling, and cybersecurity teams for end-to-end integration
- Mentored junior engineers and delivered internal training sessions

National Electric Power Company, Amman, Jordan

Communication Engineer, July 2008 – December 2010

- Maintained and optimized optical network infrastructure and power line carrier (PLC) systems.
- Conducted diagnostics for high-availability network links and managed site security technologies including CCTV and PIR systems.

AWARDS

- Rumble Fellowship, Wayne State University, 2017-2018
- Dean's Prize for the best performing postgraduate student in the School of Computing & Creative Technologies, Leeds Beckett University, July 2012

SELECTED PEER-REVIEWED JOURNALS

Obeidat, Omar, Qiuye Yu, and Xiaoyan Han. "Developing algorithms to improve defect extraction and suppressing undesired heat patterns in sonic IR images." *Sensing and Imaging* 17, no. 1 (2016): 1-15.

Obeidat, Omar, Qiuye Yu, and Xiaoyan Han. "Analytical model for depth profiling using sonic IR NDE." *NDT & E International* 100 (2018): 11-19.

Obeidat, Omar, Qiuye Yu, Lawrence Favro, and Xiaoyan Han. "The effect of defect size on the quantitative estimation of defect depth using sonic infrared imaging." *Review of Scientific Instruments* 90, no. 5 (2019): 054902.

Obeidat, Omar, Qiuye Yu, and Xiaoyan Han. "The Effect of Size on the Quantitative Estimation of Defect Depth in Composite Structures Using SIR NDE." In *Electromagnetic Nondestructive Evaluation XXII*, pp. 98-103. IOS Press, 2019.

Obeidat, Omar, Qiuye Yu, Lawrence Favro, and Xiaoyan Han. "The effect of heating duration on the quantitative estimation of defect depth using sonic infrared imaging." *Journal of Nondestructive Evaluation, Diagnostics and Prognostics of Engineering Systems* 4, no. 4 (2021): 044501.

Obeidat, Huthaifa, Mohammed Al-Sadoon, Chemseddine Zebiri, **Omar Obeidat**, Issa Elfergani, and Raed Abd-Alhameed. "Reduction of the received signal strength variation with distance using averaging over multiple heights and frequencies." *Telecommunication Systems* 86, no. 1 (2024): 201-211.

Tariq, Jannat, Mahmood F. Mosleh, Maha Abdulameer, Huthaifa A. Obeidat, and **Omar A. Obeidat**. "Hybrid Lossless Compression Techniques for English Text." *Journal of Techniques* 5, no. 1 (2023): 52-57.

Obeidat, Huthaifa A., Imran Ahmad, Mohammad R. Rawashdeh, Ali A. Abdullah, Wafa S. Shuaieb, **Omar A. Obeidat**, and Raed A. Abdallhameed. "Enhanced TOA Estimation Using OFDM over Wide-Band Transmission Based on a Simulated Model." *Wireless Personal Communications* 123, no. 4 (2022): 3449-3461.

Obeidat, Huthaifa, Ali AS Alabdullah, Nazar T. Ali, Rameez Asif, **Omar Obeidat**, Mohammed SA Bin-Melha, Wafa Shuaieb, Raed A. Abd-Alhameed, and Peter Excell. "Local average signal strength estimation for indoor multipath propagation." *IEEE Access* 7 (2019): 75166-75176.

Yu, Qiuye, **Omar Obeidat**, and Xiaoyan Han. "Ultrasound wave excitation in thermal NDE for defect detection." *NDT & E International* 100 (2018): 153-165.

CONFERENCE PRESENTATIONS

Obeidat, Omar, Qiuye Yu, and Xiaoyan Han. "The effect of defect size on the quantitative estimation of defect depth in composite structures using SIR NDE." *Review of Progress in Quantitative Nondestructive Evaluation* (2019).

Obeidat, Omar, Qiuye Yu, and Xiaoyan Han. "Further investigation on profiling defect depth in composite materials using thermal imaging NDE." In *AIP Conference Proceedings*, vol. 2102, no. 1, p. 120003. AIP Publishing LLC, 2019.

Obeidat, Omar, Qiuye Yu, and Xiaoyan Han. "Profiling defect depth in composite materials using thermal imaging NDE." In *AIP Conference Proceedings*, vol. 1949, no. 1, p. 060004. AIP Publishing

LLC, 2018.

Obeidat, Omar, Qiuye Yu, and Xiaoyan Han. "Further development of image processing algorithms to improve detectability of defects in Sonic IR NDE." In *AIP Conference Proceedings*, vol. 1806, no. 1, p. 100007. AIP Publishing LLC, 2017.

Obeidat, Omar, Qiuye Yu, and Xiaoyan Han. "Develop algorithms to improve detectability of defects in Sonic IR imaging NDE." In *AIP Conference Proceedings*, vol. 1706, no. 1, p. 100009. AIP Publishing LLC, 2016.

Obeidat, Huthaifa, Muhammad Ali Malik, Issam Trrad, Issa Elfergani, Ashwain Rayit, **Omar Obeidat**, and Raed Abd-Alhameed. "Path Loss Exponent Modeling for 6G Applications at 245 GHz." In *2024 11th International Conference on Wireless Networks and Mobile Communications (WINCOM)*, pp. 1-6. IEEE, 2024.

Trrad, Issam, Huthaifa Obeidat, Muhammad Ali Malik, Ali M. Hayajneh, Issa Elfergani, **Omar Obeidat**, and Raed Abd-Alhameed. "A Simulation Approach to Indoor Channel Design for 5G Networks at 39 GHz." In *2024 11th International Conference on Wireless Networks and Mobile Communications (WINCOM)*, pp. 1-6. IEEE, 2024.

Yu, Qiuye, **Omar Obeidat**, and Xiaoyan Han. "Studying the Vibration Behavior and Energy Consumption of Defects Using Different Transducer Size, Excited at Different Frequencies." *Electromagnetic Nondestructive Evaluation XXII* 44 (2019): 7.

Yu, Qiuye, **Omar Obeidat**, and Xiaoyan Han. "Characterizing the vibration behavior in crack vicinity in sonic infrared imaging NDE." In *AIP Conference Proceedings*, vol. 1949, no. 1, p. 060002. AIP Publishing LLC, 2018.

Yu, Qiuye, **Omar Obeidat**, and Xiaoyan Han. "Studying the nonlinearity in Sonic IR NDE." In *AIP Conference Proceedings*, vol. 1806, no. 1, p. 100005. AIP Publishing LLC, 2017.

ACADEMIC SERVICE

Peer Reviewer for Academic Journals

- IEEE Transactions on Industrial Informatics
- Sensors and Actuators: A. Physical
- Journal of Nondestructive Evaluation
- Sensors (MDPI)
- Mathematics (MDPI)

COMPUTER SKILLS

Programming: C++, Python

Simulation & Modeling: MATLAB/Simulink, NI LabView

Math Tools: Mathematica, Mathcad

Network Analysis: OPNET, Wireshark