

## PERSONAL INFORMATION

## Hussein Yahya Radhi

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## WORK EXPERIENCE

### Graduate Research Assistant - Biosensor and Embedded System Lab, University of Malaya, Malaysia. 2021-2025

**Responsibilities:**

- **Teaching & Lab Demonstrations:** Delivered hands-on lab demonstrations and guided undergraduate biomedical engineering students through practical design concepts and software tools, supporting their learning and strengthening their technical and analytical skills.
- **Layout Design and Simulation:** Designed layouts and conducted co-simulations using ADS software to optimize rectifier circuits for biomedical applications.
- **Antenna Design and Development:** Developed flexible, metamaterial-based (MTM) antennas using HFSS software, achieving enhanced performance and miniaturization for wearable applications.
- **Metamaterial Optimization:** Investigated MTM strategies to improve antenna efficiency, bandwidth, and overall device performance for wearable technologies.
- **Fabrication Techniques:** Acquired hands-on experience in antenna fabrication using flexible substrates such as textiles and techniques like photolithography.
- **Measurement and Testing:** Conducted rigorous testing and validation of antenna designs using Vector Network Analyzers (VNA), Spectrum Analyzers, and Oscilloscopes.
- **RF Energy Harvesting Research:** Led research on RF energy harvesting (rectenna) for wearable biomedical devices, contributing innovative low-power solutions for medical applications.
- **Data Analysis and Publications:** Developed experimental protocols, analyzed complex datasets, and disseminated findings, resulting in several journal articles and conference papers.
- **Interdisciplinary Collaboration:** Collaborated with teams in antenna design, biomedical engineering, and RF systems, achieving significant advancements in device efficiency and performance.
- **Biosensor Integration:** Tested and integrated various low-power biosensors with rectenna systems to enhance device functionality for biomedical applications.

Lecturer – Computer Center – University of Thi-Qar, Iraq

2025-Present

**Responsibilities:**

Head of Digital Transformation Unit

## EDUCATION

Al-Rafidain University College Bachelor's degree in computer and communication engineering	2008-2012
National University of Malaysia (UKM) Master's degree in computer and communication engineering.	2017-2019
University of Malaya (UM) Doctor of Philosophy (Ph.D.) in Biomedical Engineering.	2021-2025

## Publication

- Alkhalaf, Hussein Yahya, et al. "Flexible Meta-Patch Rectenna Array for Energizing Low-Power Wearable Medical Sensors." *IEEE Access* (2024).
- Yahya Alkhalaf, Hussein, Mohd Yazed Ahmad, and Harikrishnan Ramiah. "Self-Sustainable Biomedical Devices Powered by RF Energy: A Review." *Sensors* 22.17 (2022): 6371.
- Alkhalaf, Hussein Yahya, et al. "Electromagnetic Energy Harvesting Using 2.40 GHz Compact High Gain Patch Antenna." *Journal of Engineering Science and Technology* 17.1 (2022): 0294-0305.
- Alkhalaf, Hussein Yahya, Mohd Yazed Ahmad, and Harikrishnan Ramiah. "Design of rectifier circuit to harvest the RF energy for wearable medical devices." In *Kuala Lumpur International Conference on Biomedical Engineering*, pp. 381-388. Cham: Springer International Publishing, 2021.
- Alkhalaf, Hussein Yahya, et al. "Metamaterial-Based Textile Antenna for Wearable Medical Applications." *International Conference for Innovation in Biomedical Engineering and Life Sciences*. Cham: Springer Nature Switzerland, 2022.
- Alkhalaf, H. Y., Ahmad, M. Y., Ramiah, H., & Hossain, A. Z. (2024, December). Compact Voltage Doubler Rectifier for RF Energy Harvesting in Wearable Biomedical Devices. In *2024 International Conference on Sustainable Technology and Engineering (i-COSTE)*, Australia, (pp. 1-4). IEEE.

## AWARDS AND CERTIFICATE

**BEST PAPER AWARD 2024 – IEEE Malaysia**

## PERSONAL SKILLS

**Technical Skills:** HFSS, ADS, CST, SOLIDWORK, MATLAB, Python, C++

**Analytical Skills:** Experimental design, Data Analysis, RF system modelling

**Soft Skills:** Project management, team collaboration, communication

## Language

**Arabic:** Native Speaker

**English:** Fluent (IELTS)

**Bahasa Melayu:** Intermediate