Wearable Antenna Technology - from Materials, Components, Antennas, to System Integration

Wearable technology refers to electronic devices that are worn on the body, either as accessories or as part of clothing, and are equipped with sensors, processors, and wireless communication hardware. Typical devices include smartwatches, smart clothing, medical wearables, and smart textiles. These devices can track various aspects of the user's behaviour, physiology, or environment, and often provide feedback or perform specific functions based on the collected data. The essential component enabling wireless communication for wearable technology is the antenna. However, the main challenges in designing wearable antennas arise from the demands for comfortable wearing experience, radiation safety, and robust and adaptive antenna characteristics in worn conditions where exist strong electromagnetic interactions to the human body and the environment. The talk will focus on how to resolve these challenges at different level of aspects, from materials, components, antennas, to system Integration.

Dr. Chen received the M.E. and Ph.D. degrees in electrical and electronic engineering from The University of Adelaide, Australia, in 2013 and 2017 respectively. From 2017 to 2021, he was a postdoctoral researcher and a lecturer in the School of Electrical and Electronic Engineering at The University of Adelaide. He joined the College of Science and Engineering at Flinders University, Australia, as a lecturer in 2022. His current research interests include antenna design and engineering, wearable technology, microwave absorbers, and electromagnetic structures using advanced materials.

Dr. Chen received scholarships including the Australian Postgraduate Award 2013 and the Simon Rockliff Scholarship 2015. He was also the recipient of several awards including the Young Scientist Best Paper Award at the *International Conference on Electromagnetics in Advanced Applications (ICEAA) 2015*, the Young Scientist Best Paper Award and Travel Bursary Award at *ICEAA 2016*, an Honorable Mention at *IEEE AP-S Symposium on Antennas and Propagation (APS/URSI) 2017*, a CST University Publication Award 2017, the Best Paper Award at *IEEE Asia-Pacific Microwave Conference 2021*, and the Best Paper Award (3rd Prize) at *the 29th International Symposium on Antennas and Propagation (ISAP) 2024.*

Dr. Chen was a Top Reviewer for *IEEE Transactions on Antennas and Propagation* in 2021 and 2023. He is an Associated Editor of *IEEE Antennas and Wireless Propagation Letters*. He was the Chair of the *IEEE South Australia Joint Chapter on Microwave Theory and Techniques (MTT) & Antennas and Propagation (AP)* from 2019 to 2020, and serves again since 2023.