東北工業大学 IoT テクノロジ研究所主催　IoT 講演会

- 日 時：2020 年 9 月 9 日（水） 9:00～12:00
- 開催方法：Zoom によるオンライン開催
- 講演者：Dr.Cynthia Furse (University of Utah)
- 講演題目：Implantable Antennas for Medical Applications: Technology, Practice, Ethics

　　講演者紹介と講演概要については本ページ以下「講演者/講演概要紹介」をご参照ください.

- 参加費：無料
- 参加申込み方法：**申し込み専用サイト**よりお申し込みください。
- 主催：東北工業大学 IoT テクノロジ研究所
- 協賛：IEEE Sendai Section, IEEE Sendai WIE
- 問合せ先：袁 巧微教授（東北工業大学） qwyuan616＠tohtech.ac.jp<

　　上記問い合わせ先のアットマークは全角を使用していますのでご注意ください

講演概要

Implantable medical devices now touch virtually every major function in the human body. Cardiac pacemakers and defibrillators, neural recording and stimulation devices, cochlear and retinal implants, hormone and drug delivery systems, deep brain stimulation for treatment of Parkinson’s disease and major depression are just a few of the many implantable medical devices available today, with more continually under development. Wireless telemetry for these devices is necessary to monitor battery level and device health, upload reprogramming for device function, and download data for patient monitoring. Wireless power transfer (WPT) is used for contact-less battery recharging. Challenges of communicating through lossy tissue are exacerbated by the shrinking size of next generation devices and the desire for more and more data and power exchange. This presentation will discuss the fundamental technologies that have enabled today’s implantable antennas, and prospects for the future technology. And we will also discuss some of the societal and ethical considerations with medical implants.

講演者紹介

Dr. Cynthia Furse is Professor in the Electrical and ComputerEngineering Department at the University of Utah. Dr. Furse is a Fellow of the IEEE and the National Academy of Inventors. Her technological innovations and patents include development of a system to locate intermittent electrical faults on aging aircraft wiring, with which she founded a successful spin off company, LiveWire Innovation. She is also a pioneering researcher in the development of telemetry antennas for medical implants, and fast methods for predicting the statistical variation in bioelectromagnetic applications. Dr. Furse teaches freshman circuit design, and has prevoiusly taught electromagnetics, wireless communication, computational electromagnetics, microwave engineering, and antenna design. She is a leader in the flipped classroom teaching method. She has received numerous teaching and research awards including the 2009 IEEE Harriett B. Rigas Medal for Excellence in Teaching. She is a Fellow of the IEEE and the National Academy of Inventors. She was the Associate VP for Research at the University of Utah from 2009-2019.