

Wen Li

College of Engineering
Department of Electrical and Computer Engineering

Dr. Wen Li is an Assistant Professor in the Department of Electrical and Computer Engineering. Dr. Li's research interests include MEMS/NEMS technologies and systems; design, fabrication, and characterization of implantable, reliable bioMEMS interfaces; micro sensors and actuators; microfluidic and lab-on-chip systems; microsystem integration and packaging technologies; development of innovative, miniaturized neuroprosthetic devices and systems for seamless interfacing with brain networks. Wen Li received her Ph.D. degree and M.S. degree in Electrical Engineering from California Institute of Technology in 2008 and 2004, respectively.

Global Research Interests:

Wen's global research interests include; MEMS/NEMS technologies and systems; micro-sensors and actuators; bio-mimetic devices and systems; micro-fluidic and lab-on-chip systems; microsystem integration; and polymer based biocompatible packaging technologies.

Li uses biomedical micro-electron mechanical systems (bioMEMS) and neural engineering to develop innovative, miniaturized neuro-prosthetic devices and systems for seamless interfacing with brain networks. In order to fully implement her research ideas, a large-scale infrastructure and synergistic collaboration across disciplines is necessary. Li has a passion for international research collaborations and would like to explore collaborative opportunities at institutes in the Asian Pacific region.

Description of Research Proposal:

The primary goal is to realize a long-term reliable, fully functional, cortically-based neuroprosthetic system, which can be readily accessible and widely used by neuroscientists, clinical researchers, and pharmaceutical industry in animal studies to gain better understanding of brain functions and disorders.

As a key step toward the implementation of the proposed neuroprosthetic system, Li has initiated the following research activities: 1) design, fabrication, and characterization of implantable, flexible bioMEMS interfaces for probing and optical modulation of cortex with high spatiotemporal resolution and low power consumption; and 2) investigation of small animal representation of common brain structure and visual function for evaluating the efficacy of the developed engineering devices.

Region/Country of research:

(Collaborations with) Singapore, China, Taiwan, Germany and Australia