

Project proposed by: Supervisor:	Intelligent Sensory Microsystems Laboratory, ECE, U of T Prof. Roman Genov
Project title:	Miniature Wireless Wearable System for Neural Interfaces
Project description:	<p>The rapid advancement of neural interface technology demands innovative solutions for efficient data transmission between implants and external systems. A key challenge lies in developing compact, reliable, and high-performance wireless communication systems to handle neural data in real-time. This project offers an opportunity to contribute to solving this challenge by designing a small, integrated PCB-based system that bridges neural implants and external devices.</p> <p>We are seeking a highly motivated Electrical Engineering undergraduate to assist in this endeavor. The project will involve designing a wearable PCB that incorporates a data receiver for decoding signals from neural implants, an MCU or FPGA for control and processing, and a Wi-Fi module for wireless data transmission. Responsibilities include PCB design, signal processing, and programming the control unit to enable seamless communication. This internship provides hands-on experience in system design, hardware integration, and signal processing while contributing to cutting-edge neural interface research.</p> <p>The project will take place in the Intelligent Sensory Microsystems Laboratory, with students working closely with a Ph.D. student.</p> <p>Candidates are expected to possess the following qualifications:</p> <ul style="list-style-type: none"> • Self-motivation and a strong interest in low-power data wireless communication • A solid Embedded system and programming background (FPGA, MCU and PCB design) • Proficiency in programming with MATLAB and FPGA. • Knowledge in communication system and RF. <p>This project offers an exciting opportunity to engage with state-of-the-art technology and make a significant impact in the field of neural interfacing.</p>
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