

Title: Electronics and Embedded Systems Development for Smart Wearable Medical Devices

Contact Information: Professor Hani E. Naguib

Contact Email: naguib@mie.utoronto.ca

Research Area: Mechatronics, Embedded Systems, Integrated Circuit, Wearable Devices

Project Description:

Smart wearable medical systems rose to prominence in the last decade, and various devices have been developed for fitness tracking, health monitoring, pulse tracking, and diagnosis purposes. In this context, electronics and embedded systems have prominent importance in the integration and assembly of various modules into the wearable devices as well as assessing the functionality and capability of the wearable devices.

In the past decade, our research center, Toronto Smart Materials & Structures (TSMART) lab at University of Toronto in collaboration with industrial partners has developed smart wearable devices and sensing platforms for numerous cutting-edge applications namely ECG monitoring, miniaturized robotic tools, neurosurgical tools, and e-skin. The outcomes of these research works have been published in several prestigious journals along with several US patents.

We are looking for passionate candidates to join our team for our ongoing project on development of a smart wearable medical device for sleep disorders. The research is performed in TSMART lab in collaboration with outstanding researchers in MIE, MSE and IBBME departments. By joining our team, you will have the opportunity to perform research in one of the sophisticated research labs in Canada, expand your lab skills, and fortify your academic resume by having contribution in academic publications.

Interested candidates should contact Prof. Hani E. Naguib (naguib@mie.utoronto.ca) for more information.

Qualifications and related skills:

- Familiarity with mechatronics, microcontrollers and microprocessors programming.
- Good understanding of integrated circuits to perform computing for real-time processes used in wearable systems.
- Good understanding of computer hardware, device drivers, and programming languages such as MATLAB, Python, and/or C++.
- Experience with Cloud computing, AI, machine learning, data analytics is an asset.
- Knowledge of computer-aided design and 3D printing is bonus.
- Excellent technical writing and communication skills.