LURA/USRA Posting Information	
Position Type:	☑ Lassonde Undergraduate Research Award- summer research ☑NSERC USRA ☐ Other (please specify)
Position Title:	Research Assistant/summer researcher
Location:	BCEE 328
Professor:	**Hossein Kassiri**
Department:	**Electrical Engineering and Computer Science**
Contact for Professor (Email, phone):	**Email: Hossein@eecs.yorku.ca**
# of positions available:	**2**
Project Description (200-500 words maximum)	Brian injury is the leading cause of death and disability in North America. The annual cost of hospitalization alone is 31 billion dollars. This is partly due to the fact that there is currently no validated method for monitoring of the brain activity in the ER (emergency room). As such, the "wait and see" approach results in lost opportunities to treat brain injury complications, thus contributing to poor outcome and increasing the length of hospital stay. Today, around 40% of brain injury patients in coma experience seizures that go untreated. When anti-seizure medication is not provided, there is the risk of increased morbidity, prolonged stay, poor outcome and increased long term socioeconomic burden. Studies have shown that shortening the hospital stay of patients with brain injury by 1 day could save the health care system $400 million annually. In **integrated Circuits and Systems Lab,** we are developing a wearable device that will be used as a low-cost brain monitoring solution in the emergency room. The device will host a proprietary algorithm for early detection of epilepsy seizures. It will be used to monitor real-time brain activity of the patients who come to the ER with brain injury, to identify cases that require immediate care and treatment.
Duties and Responsibilities of the student:	The student will be responsible for the design and testing of a printed circuit board (PCB) that receives brain electrophysiological signals from multiple recording sites; analyze, decode, and organizes them; and transmit them through a wireless link to a handheld (e.g., cellphone) or stationary (e.g. a laptop) device. The board must be designed while the strict power and area budgets of a medical device taken into account.

Skills and Qualifications:	The student should have the following qualifications: - Experienced in Verilog programming. - Familiarity with electronic circuits and systems. - PCB design experience is a plus. - Self-driven and interested in the field of biomedical electronics
Degrees, courses and Disciplines prerequisite*:	- Electronic circuits - Verilog coding - Prerequisite: EECS 2210 and 3201 or equivalent.
Stipend	TBD
Are you willing to host external students? (There is an additional cost.)	Yes
Duration:	16 weeks minimum
Start Date:	05/01/2017 (estimated)
End Date:	08/31/2017 (estimated)
Materials required for application:	TBC

**The projects will be available for viewing to students outside of Lassonde School of Engineering; please be clear what type of programs/pre-requisites are required for the projects.*