

Project: Sonographic diagnosis and monitoring of covid-19

Contract: Limited term, 1 year, full time.

Starting date: As soon as possible.

Salary: up to \$40,000/year.

Education requirements: A minimum of a Bachelor degree in engineering or computer science.

Skills required: Applicants must have strong programming skills. Past experience with signal processing, image processing, ultrasound imaging, or machine learning are a definite asset.

Location: Ontario Tech University, Oshawa, ON (<https://www.biomechatronics.ca/>)

Project description

The sustained increase in new cases of covid-19 across the country and potential for subsequent outbreaks call for new tools to assist health professionals with early diagnosis and patient monitoring. Growing evidence around the world is showing that lung ultrasound examination can detect manifestations of covid-19 infection. Ultrasound imaging has several characteristics that make it ideally suited for routine use: Small hand-held systems can be contained inside a protective sheath, making it easier to disinfect than X-ray or computed tomography; lung ultrasound allows triage of patients in long term care homes, tents or other areas outside of the hospital where other imaging modalities are not available; and it can determine lung involvement during the early phases of the disease and monitor affected patients at bedside on a daily basis. However, some challenges still remain with routine use of lung ultrasound. Namely, current examination practices and image interpretation are quite challenging, especially for unspecialised personnel.

Funded by NSERC, the objective of this partnership between Ontario Tech researchers and an industry partner is to create a user friendly computer-aided method that can assist with lung ultrasound (LUS) diagnosis and monitoring of covid-19. This project will develop a computer-aided method to guide healthcare professionals during LUS examinations and autonomously identify manifestations of covid-19 in ultrasound images. This collaboration will leverage the industry partner software development expertise with Ontario Tech's resources and lab expertise to create a first-of-its-kind platform for covid-19 diagnosis that is compatible with a pocket-size ultrasound transducer. This will greatly assist medical professionals fighting covid-19 on the front lines where resources are limited, such as in long-term care homes.

Equipment and facilities: The research associate will have access to a state-of-the-art research facility at Ontario Tech University that includes a lung ultrasound simulator; a research ultrasound machine from Telemed, and an ultrasound research platform from Verasonics.

If interested, please send your CV and transcripts to: carlos.rossa@ontariotechu.ca