MSc Seminar

Tuesday January 10, 2023 at 10am via Zoom [remote]

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Artificial Intelligence tool to monitor key human biomedical vitals via thermal and visible light camera

Advisor: Dr. Andrew Hamilton-Wright
Advisory: Dr. Dan Gillis

Abstract:

Canada is currently reeling from a shortage of healthcare workers. During the Covid-19 pandemic, healthcare workers reported increased stress and workload and were more prone to re-infections so much so that a record number of healthcare workers suffered from burnout. The need of the hour is an optimal solution that can help track the bio-signals of patients who require continuous monitoring from a safe distance. And this solution must apply to a person irrespective of gender, ethnicity, or skin color.

My thesis is on developing an artificial intelligence-monitoring solution that can recognize metabolic signals like body temperature, heart rate, and respiratory rate from thermal images and utilize a time series machine learning algorithm to monitor these signals thereby eliminating the need for healthcare workers to be in close contact with the patient. Additionally, this thesis would be a good opportunity to test out the hypothesis that thermal images would be sufficient to analyze vital signals of an individual without any bias in data due to a person's race, gender, or skin color. This solution's success could help develop a complete solution that can help monitor patients from a distance, not only in hospitals but also in senior residents, thereby eliminating the overburdening of healthcare workers to a larger extent. Additionally, this solution would work efficiently in a contagion-based future epidemic thereby helping the healthcare sector that would otherwise be under a lot of strain.