SEMINAR NOTICE

Department of Physics and Engineering Physics
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SPEAKER: Ronan Lefol, PhD student, Université Laval (Québec)
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TOPIC*:*   *A GPU-based patient-specific CT dosimetry tool*

DATE: Tuesday January 30th, 2024

TIME: 3:30-4:30 p.m.

PLACE: *Physics 103*

Abstract:

Computed Tomography (CT) makes use of a thin, rotating, x-ray beam to an anatomical 3-D model of the patient. The relatively high radiation exposure to patients is currently only estimated through dose indices ignoring patient anatomy. The transition from generic dose indices to a comprehensive dose-to-organ approach has been greatly limited by the prohibitive computational cost associated with the simulation techniques.
This presentation will showcase a fast dose-to-organ extraction pipeline facilitated by the GPU Monte Carlo Dose (GPUMCD) software and automated segmentation tools for CT acquisitions. This works demonstrates the ability to generate dose distributions, segmentations, and dose reports within minutes. The development and validation of this pipeline opens the door to massive patient-specific dose-to-organ profiles to fuel epidemiological studies in diagnostic imaging.