



# COLLEGE of ENGINEERING AND PHYSICAL SCIENCES

SCHOOL OF COMPUTER SCIENCE

## PhD Seminar 1

**Friday July 14, 2023 at 11:30am via Zoom [Remote]**

**Przemyslaw Pawluk**

*Effectiveness of the Technology-enhanced Question-based Tutoring  
In the Context of IT Learning*

**Advisor:** Dr. Judi McCuaig

**Co-Advisor:** Dr. Agnieszka Palalas [Athabasca University]

**Advisory:** Dr. Shoshanha Jacobs [Integrative Biology]

### **Abstract:**

One of the first and most important skills that Information Technology (IT) Students have to master is problem analysis and decomposition as the first step of Solution construction. Novice programmers often experience difficulties in this area. Much of that difficulty results in problems with programming as the two are closely related. This relation has to be understood in order to teach programming and problem-solving effectively. Building a proper scaffolding for learners through tutoring enables them to improve their understanding of the Computational Thinking (CT) concepts and improve their problem-solving skills.

In this research, we investigate ways in which technology-augmented, question-based tutoring can be used to help students decompose a problem into actionable steps. This will be done without removing a human tutor from the picture but rather supporting the tutor by technological AI-backed augmentation. Our ultimate goal is to provide support for tutors in their role as a guides and allow the tutee to fully benefit from the interaction with the human tutor.