Title: Implementation and Integration of an Advanced Small Modular Reactor (SMR) Simulator

Description: As Canada advances the deployment of Small Modular Reactors (SMRs), there is a growing need to understand how advanced automation and novel human-system interfaces affect operator performance, particularly during unexpected system and automation failures.

This MEng project will contribute to the implementation, integration, and validation of an advanced SMR simulator at the University of Toronto. The simulator will support future empirical research on human operator performance and human-system interaction in SMR operations, with potential applications to interface design, staffing, and operational guidance. The Cognitive Engineering Lab (CEL) is looking for a passionate MEng student who is interested in investigating how humans interact with large-scale, safety-critical systems.

What You'll Do

Working with the research team and external collaborators, the student will contribute to:

- Developing hardware and system procurement requirements
- Integrating simulator hardware and software components
- Coordinating technical requirements with international collaborators
- Defining verification & validation (V&V) criteria
- Conducting V&V activities and documenting results
- Developing technical documentation for system setup and use

Preferred qualifications

- Excellent understanding of computer hardware and software systems
- Experience assembling and configuring computer systems (PC)
- Basic programming skills
- Experience triaging, troubleshooting, and debugging computer systems
- Interest or experience in human factors engineering is an asset
- Familiarity with V&V is an asset

Location: This is an in-person project based at the University of Toronto, 800 Bay St.

Application: Please submit your CV to Prof. Greg Jamieson (greg.jamieson@utoronto.ca) and cc Dr. Karine Ung (karine.ung@utoronto.ca).