Dr. Oscar Lin's Current Research Projects

Project I: UAVs Processing and MAS for Situation Awareness and Uncertainty Assessment

Project II: AI-Powered Adaptive Online Learning Systems

Graduate Students Orientation

Nov. 8, 2024

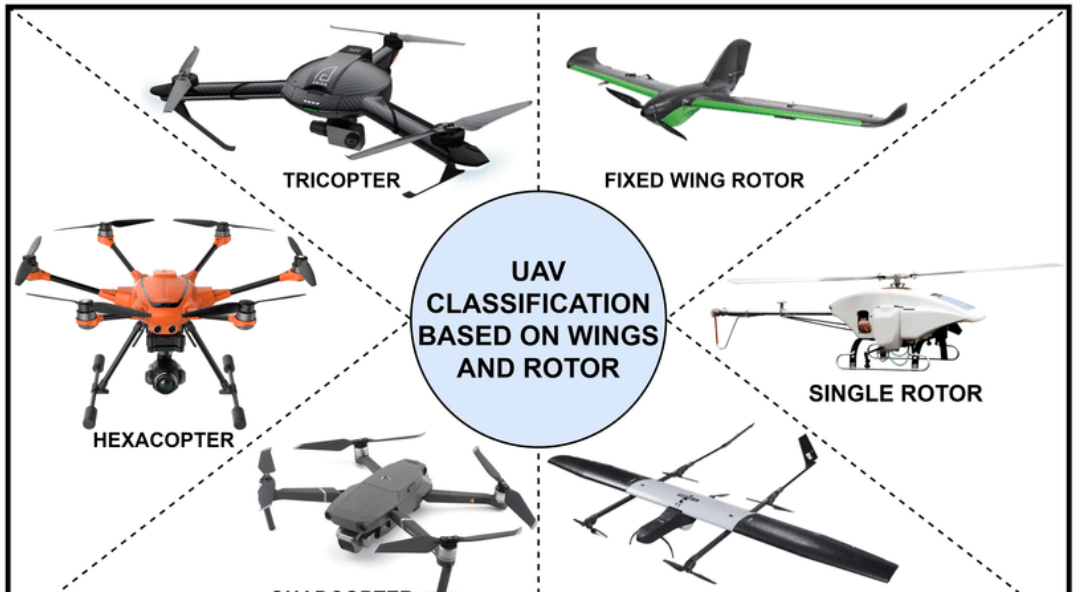
https://oscar.athabascau.ca

Project I: UAVs Processing and MAS for Situation Awareness and Uncertainty Assessment

- Major Innovation Fund

Goal 1

- Algorithms to coordinate a fleet of UAVs distributed optimization problems.
- Multiagent deep reinforcement learning (MADRL)



Goal 2

An interactive, immersive multi-UAV operation training environment, a distributed cyberlearning environment. This environment will combine or integrate the computer-based virtual mode and the physical mode, enabling from personalized and collaborative team-based training.

Goal 3

Algorithms to assess uncertainty, to analyze data (i.e., hyperspectral imagery) using remote sensing to address problems in real-world

Team

- Students
  - Wilson Hau
  - Leo Howard
  - Raymond Morland
- Collaborators
  - University of Calgary
  - UAV companies

https://oscar.athabascau.ca

Project II: AI Powered Adaptive Online Learning Systems

Title: Eliciting Adaptive Sequences for Online Learning

Funding Agency: NSERC, Alberta Innovates, AU

Goal: to enable future online learning systems to provide adaptively altering learning sequences of content and activities in real time that will best fit the student's needs and knowledge states. Such systems are expected to make student learning not only easier but also far more efficient.

Methods: Reinforcement Learning, Knowledge Graphs, Simulation, Empirical study, GenAI,

Team members

- Students
  - Raymond Morland
  - Gagan Jhajj
  - Adam Zieleman
  - Hongxin Yan
  - …
- Professors
  - Waseda University in Japan
  - Liwa Collage, UAE
  - St. Mount Vincent University
  - Other profs of AU