

## **SD770–Graphical Deep Learning**

**Winter 2023**

**Instructor: Alexander Wong (University of Waterloo)**

### *Description*

This reading course is intended to provide insights into advanced topics in graphical models for deep learning. The topics discussed include but are not limited to: graphical interpretation of deep neural networks, activation design patterns, architectural design patterns, and optimization strategies.

### *Topics*

- Introduction
- Graphical interpretation of deep neural networks
- Activation design patterns
- Architectural design patterns
  - Deep convolutional graphical models
  - Deep recurrent graphical models
  - Deep random graphical models
  - Deep embedded graphical models
- Optimization strategies

### *Textbook*

- No textbooks are required. All materials covered will be through recent research papers and review papers in the field.

### *Participation Expectations*

Students are expected to participate in weekly discussions.

### *Grading*

- Weekly summary reports – 30%
- Design project – 70%