CS 5914 DECISION MAKING UNDER UNCERTAINTY
FALL 2022

INSTRUCTOR AND OFFICE HOURS

Instructor: Dr. Jin-Hee Cho (Email: jicho@vt.edu; Room 310 @NVC)

Class Time: TBD

Period: 08/22/2022 – 12/07/2022

Class room: TBD

Office hours for Dr. Cho: TBD

COURSE DESCRIPTION

We make decisions in our everyday life. Often times we face how to make decisions under uncertainty which can be introduced by various types of causes. Although the research on 'decision making uncertainty' has been studied for several decades in various research domains as well as diverse disciplines, it has remained as a challenging problem. Since the decision making and uncertainty research has been explored in diverse directions, due to the time constraints and considering our interest as a computer scientist, we will study this topic in terms of key concepts, theories, applications, and related state-of-the-art work in the areas of Artificial Intelligence. In particular, we will learn these in belief/evidential models, game/decision theories, and machine/deep learning.

PREREQUISITES

Students are expected to have knowledge and understanding in advanced algorithms, including machine/deep learning, and programming skills to complete assigned projects.

TEXTBOOK

- *Subjective Logic: A Formalism for Reasoning Under Uncertainty (Artificial Intelligence: Foundations, Theory, and Algorithms)*, by Audun Jøsang, 1st ed. 2016 Edition, ISBN-13: 978-3319423357
- *Decision Making Under Uncertainty: Theory and Application* (MIT Lincoln Laboratory Series), by Mykel J. Kochenderfer, 2015 Edition, ISBN-13: 978-0262029254

The PDF versions of the textbooks will be made available on the canvas course website.

REFERENCES: The state-of-the-art research papers will be selected and made available on the canvas course website.

GRADING

- 3 Programming Projects: 45% (15% each)
- 3 Presentations for Your Projects: 15% (5% each)
- Mid-Term Exam: 20% (open book/note)
- Final Exam: 20% (open book/note)

PROGRAMMING ASSIGNMENT

This is an individual work. Programming assignment can be done in any programming language but should meet all the submission requirements that will be given.