

COMPUTING: ARTIFICIAL INTELLIG (CAI)

CAI 4105 - Machine Learning (3 Credits)

An overview of machine learning algorithms and their applications.

Topics include concepts, principles, and approaches of machine learning, including classification, clustering, structured models and recommendation system.

Prerequisite(s): COP 3530

CAI 4203 - Neural Networks & Deep Learn (3 Credits)

Covers the main topics necessary to design, train, evaluate and apply neural networks and deep learning in various contexts. Biological inspiration, network architectures and learning paradigms, unsupervised neural networks, single and multi-layer networks, recurrent networks, convolutional neural networks, generative models, deep reinforcement learning, transfer learning and pretrained models.

Prerequisite(s): COP 3530

CAI 4313 - Applied Natural Language Proc (3 Credits)

This course covers the main topics necessary to learn about and apply Natural Language Processing (NLP) models and solutions. Topics include text structuring and representation, pre-processing, regular expressions, visualization, predictive and exploratory analysis of text with tasks such as Topic Modeling, Sentiment Analysis and Named Entity Recognition (NER), and challenges and ethics, among others.

Prerequisite(s): COP 3530

CAI 5205 - Adv Neural Net & Deep Learning (3 Credits)

This course focuses on advanced concepts and applications of artificial neural networks and deep learning, exploring the cutting-edge developments in the field. Participants will gain an in-depth understanding of the latest architectures, optimization techniques, and emerging trends in neural network research and applications.

CAI 6107 - Advanced Machine Learning (3 Credits)

A broad introduction to advanced machine learning, including data pre-processing and feature selection; anomaly detection; advanced learning approaches (meta-learning, semi-supervised learning, reinforcement learning, federated learning, transfer learning, multimodal learning); biclustering; recommender systems; ensembles and committee machines; multilabel classification; unstructured data mining; graph and network mining.

CAI 6307 - Adv. Nat. Language Processing (3 Credits)

Advanced topics for Natural Language Processing including text structuring, representation, and predictive or exploratory analysis. Focus on the latest advancements in NLP models and their application across diverse tasks. Students will examine associated challenges and ethical considerations.

CAI 6930 - Special Topics (3 Credits)

The course is centered around topics related to Artificial Intelligence of special interest to students or faculty. Topics may vary according to interests and need of students.