Deep Learning Course Curriculum

Introduction to Deep Learning

- Understanding the fundamentals of Deep Learning and its applications in AI.
- Differentiating between Deep Learning and traditional machine learning approaches.
- Introduction to TensorFlow and Keras: Popular Deep Learning libraries in Python.

Neural Network Basics

- Introduction to Artificial Neural Networks (ANNs) and their components.
- Building blocks of neural networks for classification and regression.
- Understanding and selecting appropriate activation functions.
- Implementing feedforward neural networks with TensorFlow and Keras.

Multi-Layer Perceptrons (MLPs) for Classification

- Extending neural networks with hidden layers for complex tasks.
- Training neural networks using gradient descent.
- Selecting appropriate loss functions for classification tasks.
- Implementing softmax activation for multi-class classification.

Convolutional Neural Networks (CNNs) for Image Classification

- Understanding CNNs and their applications in image recognition.
- Implementing feature extraction and dimensionality reduction.
- Utilizing pre-trained CNN models for specific image classification tasks.

Recurrent Neural Networks (RNNs) for Time Series Regression

- Introduction to RNNs and their ability to handle sequential data.
- Long Short-Term Memory (LSTM) and Gated Recurrent Units (GRUs).
- Sequence-to-Sequence Models: Applications in time series regression and forecasting.

Hyperparameter Tuning and Model Evaluation

- Techniques to optimize hyperparameters for better model performance.
- Evaluating Deep Learning models: Cross-validation and metrics selection.
- Deploying trained Deep Learning models to production environments.

Final Capstone Project

- Undertaking a real-world Deep Learning project with TensorFlow and Keras.
- Implementing classification and regression models for practical applications.

Prerequisites:

- Basic programming knowledge (Python) is recommended but not mandatory.
- While prior programming knowledge is helpful, we welcome learners from all backgrounds. A passion for AI and a desire to learn are all you need to succeed in this course.

Why Choose Our Course?

By enrolling in our Deep Learning Course, you'll gain hands-on experience through real-world projects and mentorship from seasoned AI professionals. Our curriculum is tailored to meet the demands of the Canadian job market, providing you with job-ready skills and networking opportunities within the AI community. Whether you're an entry-level professional or an University student, this course will empower you to seize the abundant job opportunities awaiting in Canada's thriving AI ecosystem. Embrace the future of AI and deep learning today!