Artificial Intelligence Picodegree

HURU School

10/15/2020

Overview

HURU School's Picodegree in Artificial Intelligence is a pioneer in the world of education. The picodegree will provide you with a good foundation to become a world class Artificial Intelligence Engineer. Through dynamic student led lectures, practical work and group discussions and presentations, you will gain exposure to the latest methods, techniques, and tools in the Artificial Intelligence space. The course will equip you, the student, with concepts and principles that will make you a world class AI professional with ability to prototype world changing algorithms in the Computer Vision or Natural Language Processing Fields.

Course Objectives

- To impart an in-depth understanding of the interplay between Data, Artificial Intelligence and real life applications.

  (i) emphasizing the ways in which Artificial Intelligence knowledge can "scale up" to affect your organization, as well as
  (ii) understanding how Artificial Intelligence knowledge has evolved to shape the business and scientific landscapes.
  (iii) understanding how Artificial Intelligence is shaping our world today.

Our objectives are:

- To help students think creatively about major questions in Artificial Intelligence and refine their skills in posing ethical approaches to practical Artificial Intelligent applications.

- To appreciate the role of data science in the development of useful real life applications.

- To achieve a working knowledge and level of comfort with cutting edge Artificial Intelligence tools for science, business and local innovation.

Instructors

Main Instructors:

Name: TBA

Email: TBA

Teaching Assistants:

Name: TBA

Email: TBA

Course Duration:

- 4 Months

Meeting Times (All times are based on the UTC +3:00 Time Zone):

- 9:00-11:30 AM, Tuesday and Thursday - Regular Class
- 7:00-8:30 PM, Tuesday and Thursday - Evening Class

Requirements:

- Preferably a Bachelors or Masters Degree, Some experience with coding and enthusiasm to learn.

- Internet connectivity and availability throughout the course.

- Laptop/Desktop Computer - with enough processing power to run data analysis locally.

Learning Outcomes

Throughout the semester, students will learn to:

- Think about the ethical implication of the skills they will acquire.

- Envision and execute impactful AI pipelines.

- Prepare professional Artificial Intelligence presentations.

Text:

There will be no course textbook; instead we will rely heavily on online open source material.

Grading:

Students will be evaluated based on presentation and analysis of the class project and broken down as follows:

- Info update presentations (10%)
- Group/individual proposals: (10%)
- Group/individual final presentation: (10%)
- Individual reports: (10%)
- Assignments: (30%)
- Attendance: (30%)

Class project:

Students will work individually or in groups to design and propose an Artificial Intelligence project that can impact the lives of at least 1 million people. Students will be required to present this project, inculcate instructor feedback, carry out the project to completion and turn in a 2 page single-spaced (max) writeup for their final project using a latex based or markdown based word processor.

Course outline:

Week 1: *Artificial Neurons: Case studies of the brain and the history of the study of Artificial Intelligence.*

Week 2: *Info-updates of the state of the art in AI*

Week 3: *Real life on screen AI Code implementation*

Week 4: *Introduction to Deep Learning and Neural Networks.*

Week 5: *Convolutional Neural Networks*

Week 6: *Perceptrons and Matrix multiplication in Neural Network architecture*

Week 7: *The Math that underlies Artificial Intelligence and understanding deep learning models.*

Week 8: *Gradient Descent, Back Propagation and Hyper Parameter Tuning*

Week 9: *Recurrent Neural Networks*

Week 10: *Generative Neural Networks*

Week 11: *Devops and Deploying Deep Learning Models to Production*

Week 12: *Projects*

Week 13: *Projects*

Week 14: *Proposal defense*

Week 15: *Project Implementation (Linkedin and Github Seminars)*

Week 16: *Final Presentations*

Welcome to a unique learning experience at HURU!