

The University of Texas at Tyler
Department of Electrical Engineering

EENG 5399: Independent Study (Neural Networks and Deep Learning)

Syllabus

Catalog Description:

This course will cover machine learning approaches that are based on neural networks, also referred to as 'deep learning', and how these approaches are applied to solve artificial intelligence problems.

Prerequisites:

Programming competency, Probability/Statistics, Linear Algebra.

Credits:

3 (0 hours lecture, 0 hours laboratory per week)

Text(s):

Deep Learning by Ian Goodfellow, Yoshua Bengio, and Aaron Courville
Deep Learning for NLP and Speech Recognition by Uday Kamath, John Liu, and James Whitaker

Additional Material: Lecture Handouts

Course Coordinator: Ali Ghorshi, PhD

Topics Covered: (paragraph of topics separated by semicolons)

Examine the theory behind a range of deep learning algorithms, and practice applying deep learning algorithms to, for example, visual data (computer vision), textual data (natural language processing), and their combination.

Evaluation Methods: (only items in dark print apply):

1. Examinations / Quizzes
2. Homework
3. Report
4. Computer Programming
5. Project
6. Presentation
7. Course Participation
8. Peer Review

Course Objectives¹: By the end of this course students will be able to:

1. Understand the key concepts for designing deep learning models. [2-6]
2. Apply deep learning models to perform various artificial intelligence tasks. [4,5]
3. Conduct and communicate a novel project. [3,5,6]

¹Numbers in brackets refer to method(s) used to evaluate the course objective.

Relationship to Program Outcomes²: This course supports the following Electrical Engineering Program Outcomes, which state that our students will:

1. Graduates of the program will possess a breadth and depth of knowledge in electrical and computer engineering. [1-3]
2. Graduates of the program will possess and demonstrate oral and written communication skills. [1-3]
3. Graduates of the program will demonstrate the capability to perform independent learning and investigation. [1-3]

²Numbers in brackets refer to course objective(s) that address the Program Outcome.

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