COURSE DETAIL

NUMERICAL ALGORITHMS FOR LINEAR ALGEBRA, OPTIMIZATION, AND DEEP LEARNING

Country
United Kingdom - England

Host Institution
Exeter College, University of Oxford

Program(s)
Summer in Oxford, Exeter College

UCEAP Course Level
Upper Division

UCEAP Subject Area(s)
Computer Science

UCEAP Course Number
128

UCEAP Course Suffix
S

UCEAP Official Title
NUMERICAL ALGORITHMS FOR LINEAR ALGEBRA, OPTIMIZATION, AND DEEP LEARNING

UCEAP Transcript Title
NUMERCAL ALGORITHMS

UCEAP Quarter Units
6.00

UCEAP Semester Units
4.00

Course Description

This course explores modern numerical algorithms through three connected tasks: large scale linear algebra, optimization for data science, and deep learning. The first six lectures discuss how to approximately solve massive scale linear algebra tasks using techniques not covered in linear algebra courses. The second six lectures discuss optimization algorithms with a focus on large data science tasks. Numerical optimization is one of the most useful skills as so many tasks from science to business can be cast as optimization problems. The six seminars focus on deep learning, the key algorithmic advance driving the recent advances in machine learning and artificial intelligence. The lectures on numerical linear algebra and optimization ground this course in well understood numerical algorithms which students can study in detail, while the deep learning seminars give students the opportunity to explore the excitement driving the AI revolution.

Language(s) of Instruction
English

Host Institution Course Number

Host Institution Course Title
NUMERICAL ALGORITHMS FOR LINEAR ALGEBRA, OPTIMIZATION, AND DEEP LEARNING

Host Institution Course Details
https://www.exeter.ox.ac.uk/file/2024/01/Numerical-Algorithms-for-Linear-Algebr...

Host Institution Campus
Exeter College

Host Institution Faculty

Host Institution Degree
Host Institution Department
Course Last Reviewed 2024-2025

Print