

COURSE DETAIL

MACHINE LEARNING SYSTEMS AND HARDWARE

Country

United Kingdom - England

Host Institution

Imperial College London

Program(s)

Imperial College London

UCEAP Course Level

Upper Division

UCEAP Subject Area(s)

Computer Science

UCEAP Course Number

131

UCEAP Course Suffix**UCEAP Official Title**

MACHINE LEARNING SYSTEMS AND HARDWARE

UCEAP Transcript Title

MACHINE LEARNING

UCEAP Quarter Units

5.00

UCEAP Semester Units

3.30

Course Description

This course presents the systems and hardware foundations of modern machine learning, bridging neural network workloads, compiler optimizations, and advanced AI hardware. The course covers cutting-edge AI hardware, including GPUs, TPUs, and wafer-scale accelerators, highlighting the design trade-offs between cloud and edge deployment. Topics such as efficient ML (quantization, pruning), algorithm-hardware co-design, federated learning, and system support for large language models (LLMs) are also presented. Through lectures, tutorials, and hands-on programming lab sessions, students gain practical skills and a systems-level understanding of ML deployment, preparing them for advanced research or industry roles in ML system design.

Language(s) of Instruction

English

Host Institution Course Number

COMP70114

Host Institution Course Title

MACHINE LEARNING SYSTEMS AND HARDWARE

Host Institution Course Details

<https://www.imperial.ac.uk/computing/current-students/courses/70114/>

Host Institution Campus

Host Institution Faculty

Host Institution Degree

Host Institution Department

Computing

Course Last Reviewed

2025-2026

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