

COURSE DETAIL

ADVANCED ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING: COMPUTER VISION

Country

United Kingdom - England

Host Institution

Lady Margaret Hall, University of Oxford

Program(s)

Summer in Oxford, Lady Margaret Hall

UCEAP Course Level

Upper Division

UCEAP Subject Area(s)

Computer Science

UCEAP Course Number

152

UCEAP Course Suffix

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UCEAP Official Title

ADVANCED ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING: COMPUTER
VISION

UCEAP Transcript Title

ADV AI: COMP VISION

UCEAP Quarter Units

6.00

UCEAP Semester Units

4.00

Course Description

In this course, students who are already familiar with the key theoretical foundations of artificial intelligence and machine learning dive deeper into the exciting capabilities of this area of research and its applications. The course begins with computer vision algorithms for classification, recognition, detection, and their implementation in deep learning libraries, before exploring autoencoders and variational autoencoders, and gaining insights into the training and application of generative adversarial networks. It then proceeds to an in-depth examination of diffusion models, including score-based diffusion models, latent diffusion models, and Stable Diffusion. The final part of the course explores even more advanced topics, including the representation of 3D objects, vision transformers, video classification, and text to image generation.

Language(s) of Instruction

English

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Host Institution Course Details<https://www.lmh.ox.ac.uk/advanced-artificial-intelligence-and-machine-learning-...>**Host Institution Campus****Host Institution Faculty****Host Institution Degree****Host Institution Department**

Course Last Reviewed

2026-2027

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