COURSE DETAIL

FUNDAMENTAL COMPUTER VISION

Country
Korea, South

Host Institution
Yonsei University

Program(s)
Yonsei University

UCEAP Course Level
Upper Division

UCEAP Subject Area(s)
Computer Science

UCEAP Course Number
131

UCEAP Course Suffix

UCEAP Official Title
FUNDAMENTAL COMPUTER VISION

UCEAP Transcript Title
FUND COMPUTR VISION

UCEAP Quarter Units
4.50

UCEAP Semester Units
3.00

Course Description

This course introduces computer vision with a focus on modern deep learning. We start with the foundational concepts and history of the field. We then dive into the key architectures that have shaped modern computer vision. We study convolutional neural networks (CNNs) and Vision Transformers (ViT), learning how they work and how they are used for fundamental tasks like image classification, object detection, and semantic segmentation. Then, we cover 3D computer vision, including problems like 3D reconstruction. Finally, students focus on deep generative models for vision, exploring how they are used to create realistic images and videos.

Prior to taking this course, it is recommended that students take courses in linear algebra and probability and statistics.

Topics include Introduction to Computer Vision; Basics of Digital Images and Processing; Machine learning and neural networks; Convolutional neural networks (CNNs); Computer vision problems; Vision transformers (ViTs) for computer vision; 3D Computer Vision; Generative Models: VAEs, GANs; and Generative Models: Diffusion Models, Multimodal models.

Language(s) of Instruction
English

Host Institution Course Number
EEE3545

Host Institution Course Title
FUNDAMENTAL COMPUTER VISION

Host Institution Course Details

Host Institution Campus

Host Institution Faculty

Host Institution Degree

Host Institution Department

Course Last Reviewed

2025-2026

Print