

AI 2 Course Syllabus

Objectives

This course aims at expanding on concepts taught in AI 1 as well as diving into specific implementations of AI models. We focus mainly on image classification algorithms and natural language processing in this course. We break down the major topics into "Modules" that focus on each topic one at a time.

Module Topics

1. Crash Course - A primer on Python before we jump into AI.
2. Natural Language Processing - A deep dive into how programs can determine the topics and semantics of words within given texts.
3. Image Classification - Experiments and tutorials on how to make your own image classification algorithm as well as ways to expand on it.
4. OpenCV2 - A primer on how to manipulate images and videos using the OpenCV2 library for Python.
5. Pose Estimation - a guide on how to detect certain poses from images and videos using the MediaPipe library.

Topics and Schedule

Module 0	Topic - Crash Course
L0-1	Python File Structure, Syntax, and Printing
L0-2	Variables
L0-3	Boolean Expressions
L0-4	Conditional Statements
L0-5	Lists
L0-6	Functions
L0-6	Dictionaries

Module 1	Natural Language Processing
L1-1	Introduction to NLP
L1-2	A Primer on NLP
L1-3	Sentimentality
L1-4	Similarity
L1-5	Topic Assignment
L1-5 Project	Survey

Module 2	Topic - Image Classification
L2-1	Convolutional Neural Networks
L2-2	Dataset Collection
L2-3	Teachable Machines
L2-4	Using Your Image Classifier
L2-5	YOLOv7

Module 3	Topic - OpenCV2
L3-1	Installation
L3-2	Images
L3-3	Videos
L3-3 project	Experiment

Module 4	Topic - Pose Estimation
L4-1	Pose Estimation
L4-2	Pose Estimate Analysis

Module 4	Topic - Pose Estimation
L4-3	Medipipe Face Mesh
L4-3 Project	Fitness Program