Michael Curry
Independent Study Fall 2022
Computer Vision Course Design

My independent study will encompass the design of a college level course in Image Processing and Computer Vision. This course is intended for students studying Computer Science, Physics, along with Fine Arts and Design disciplines but is open to students from any background who have basic programming knowledge in any language.

The course will be broken into 10-12 modules and use the OpenCV (https://opencv.org/) library throughout. Each module will be presented in a Jupyter notebook (https://jupyter.org/).

Initially focusing on static images, the course will present modules in image formats and data structures to give students a basic knowledge on how image information is stored digitally. The course will transition into modules on the manipulation of the stored image data covering topics such as filtering, transforming, and sorting.

With this base the course will move into computer visions topics such as image classification and segmentation. Students will build a simple Convolutional Neural Network using OpenCV and a supplied image dataset.

The final modules will introduce video along with object detection and tracking. With the building blocks of the previous module's, students will have a solid understanding of the full pipeline of modern Computer Vision.