IAT 884
Computer Vision

Computer Vision
Algorithms

Frame Differencing
Identifies differences between adjacent frames

Background Subtraction
Detects differences between each frame and an initial image of the scene's background

Brightness Thresholding
Detects differences in Luminosity between foreground and background

Brightness Tracking
Tracks the brightest spot in a video image.

Computer Vision
Other Techniques

Color Tracking
Identify and track a specific color

Blob Tracking
Identify regions in the image that are lighter or darker than surroundings

Fiducial Tracking
Track specific patterns representing individual objects

Face Recognition
Scan facial features to identify individual people

Computer Vision
A Few Software Libraries

OpenCV: sourceforge.net/projects/opencvlibrary
Works with processing

CV.Jit: http://jmpelletier.com/cvjit/
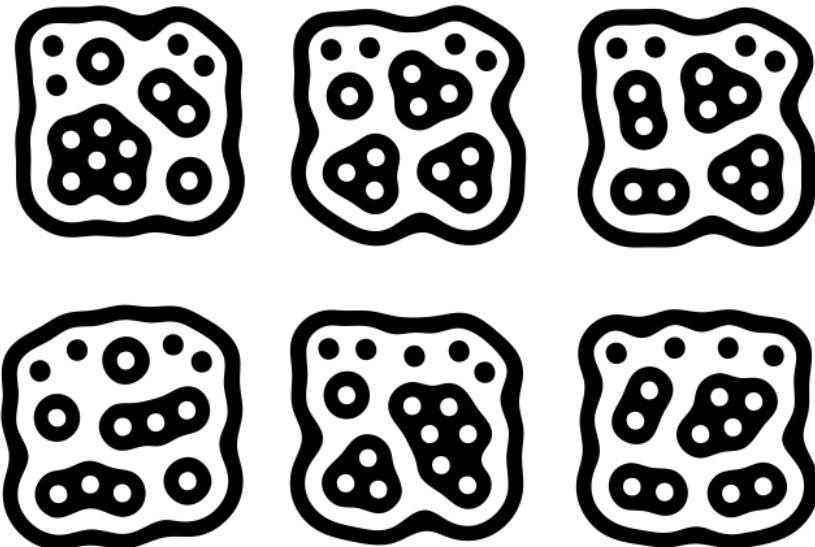Max/MSP/Jitter

Vuforia https://www.vuforia.com/
Unity

Computer Vision
Tabletop Applications

reacTIVision: reactivision.sourceforge.net/
Fiducial Tracking and Multi-Touch Surfaces

Computer Vision
In Class Activity

1. Download the camera vision example code

2. Run the Basic Webcam Connection example
   Modify the sketch to manipulate the camera feed in some way.

3. Run the Improved Blob Tracking example
   Click on a colour inside the sketch to track it

4. Run the Face Detection sketch

5. Task: Think of 3 ways to use camera vision & discuss in groups.