



Emerging Topics + Final Exam

EE382V Activity Sensing and Recognition

UT Austin • Dept. Electrical and Computer Engineering • Fall 2016

Projects

Project Presentations (10% final grade)

Nov 29th and Dec 1st

Team assignments will be posted next week

10 mins. + 5 mins. Q&A

Live demo and/or video can enlighten your presentation

Project Report (15% final grade)

4-page long or more following ACM double-column format

Feel free to include extra material or evidence of work

Projects

Dec 4th @ 11PM

Presentation Materials + Report Due

Submit through Canvas

Canvas assignments for presentation materials and report

Final Exam

Final Exam

Activity Recognition Pipeline

Data Collection

Different methods, settings, pros and cons

What are the challenges and why

Machine Learning

Learning algorithms, advantages and disadvantages

How to choose parameters

Final Exam

Machine Learning

What does it mean to have a good model?

How to evaluate a model (different techniques)

Which metrics are often used

Sensing

Environmental vs. On-body, pros and cons, challenges

Modalities and approaches for environmental sensing

Extracting features, how to choose features (based on modalities)

Final Exam

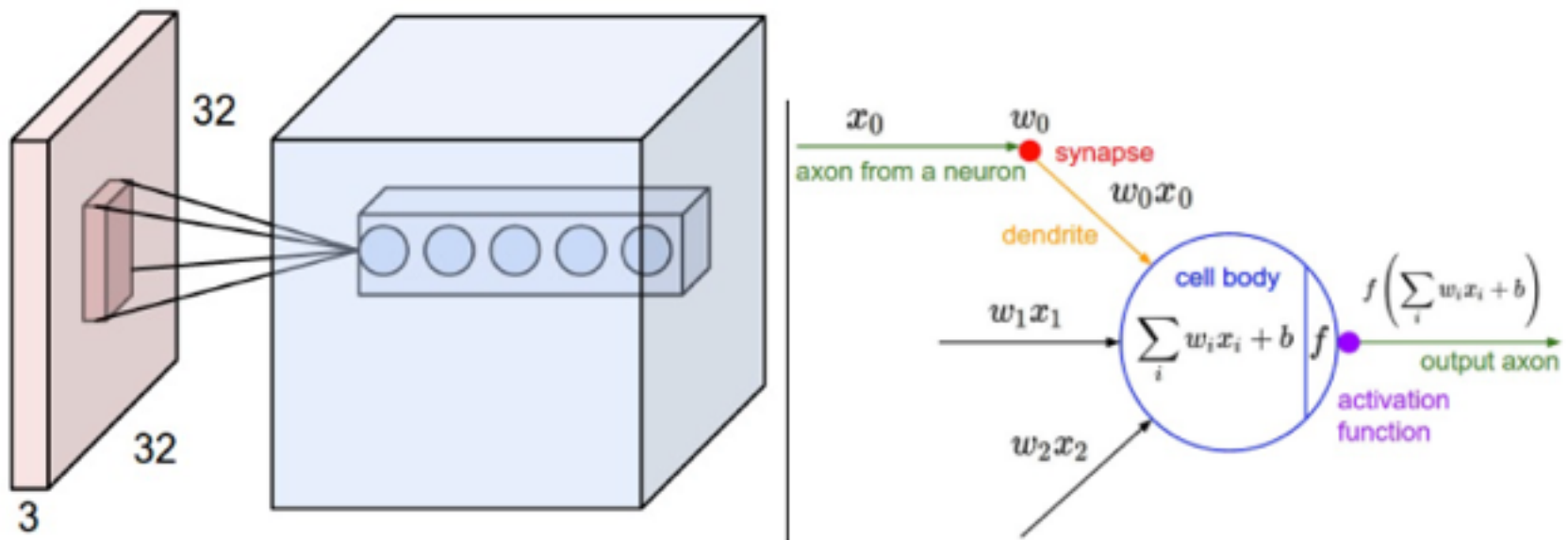
Sensing

Process of obtaining sensor data from phone

Hardware challenges in env. and wearable sensing

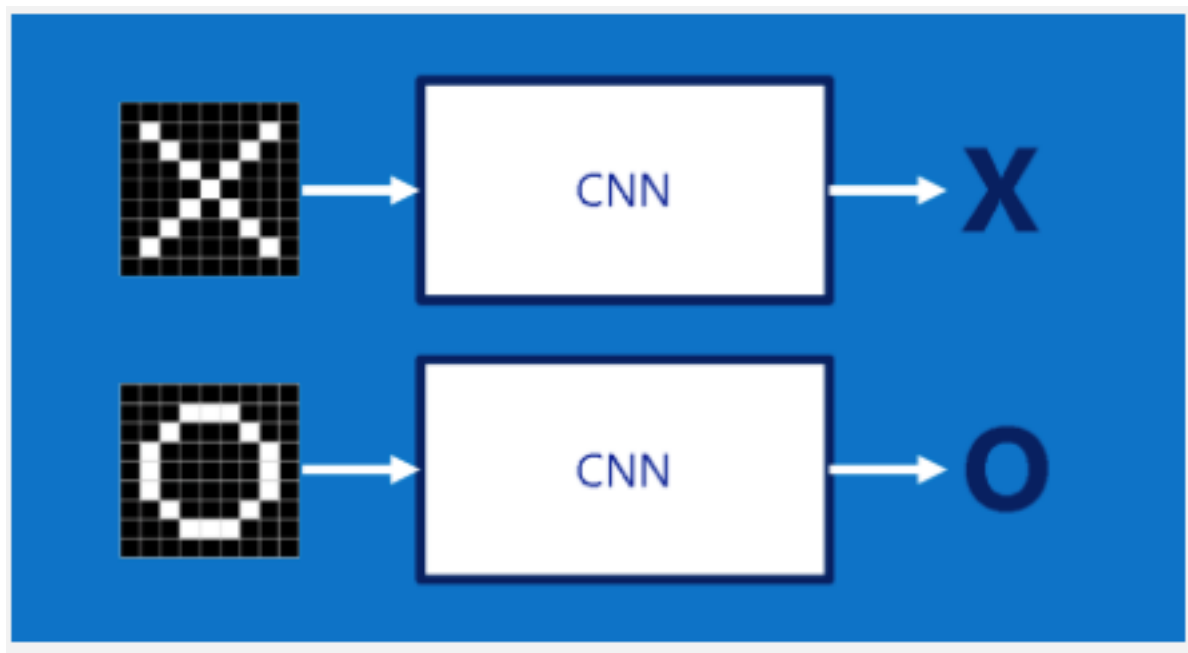
Techniques for determining location

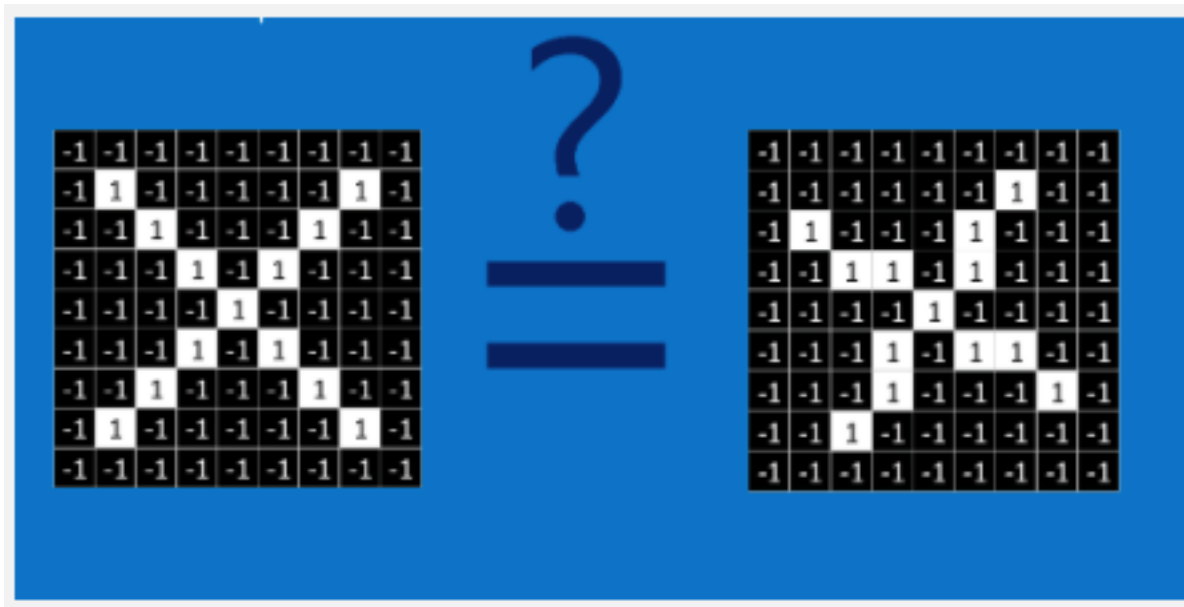
Why is hard to work with images as sensor data

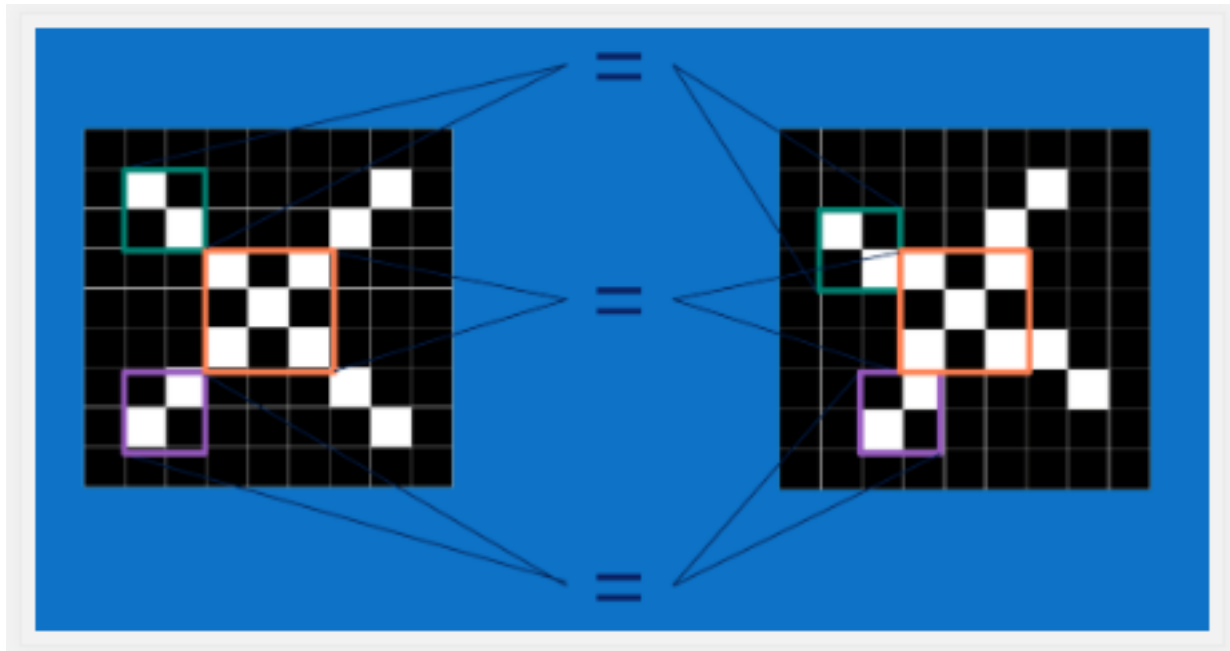


Convolutional Neural Networks

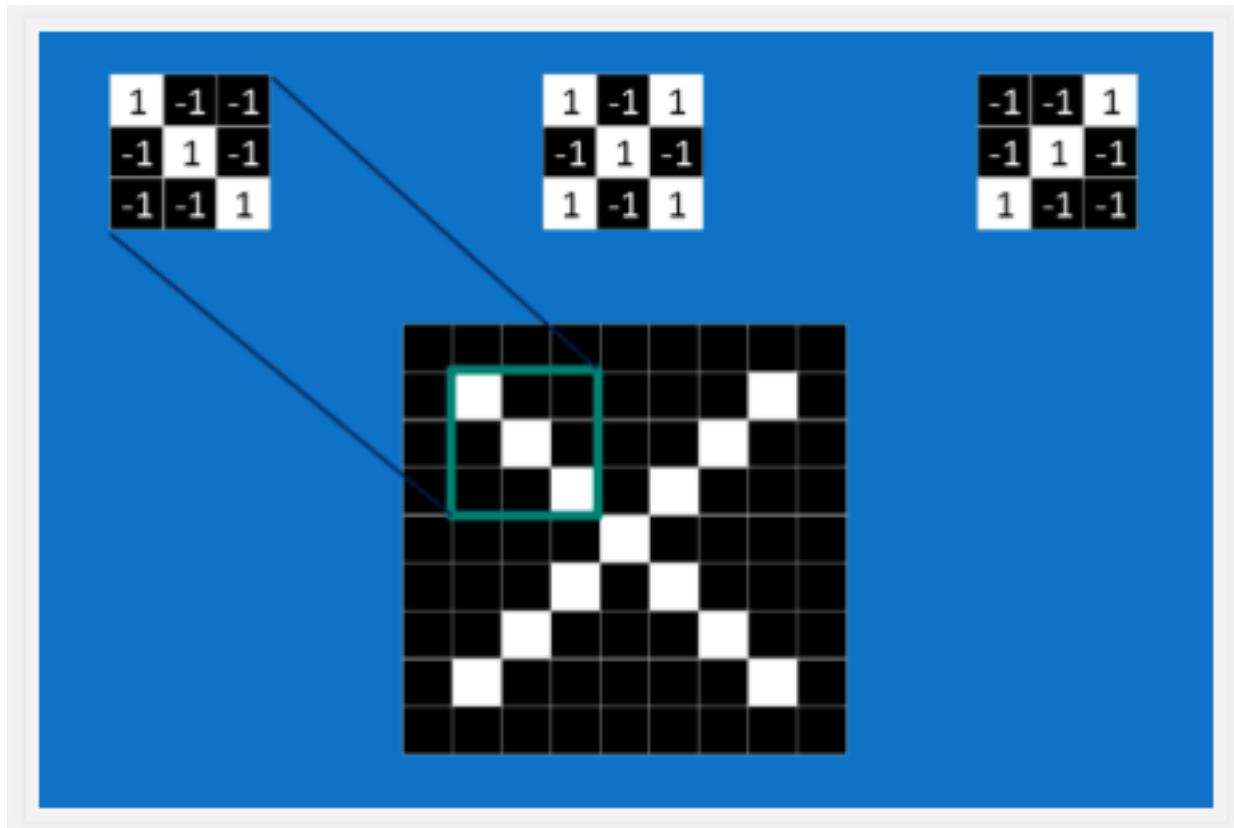
EE382V Activity Sensing and Recognition



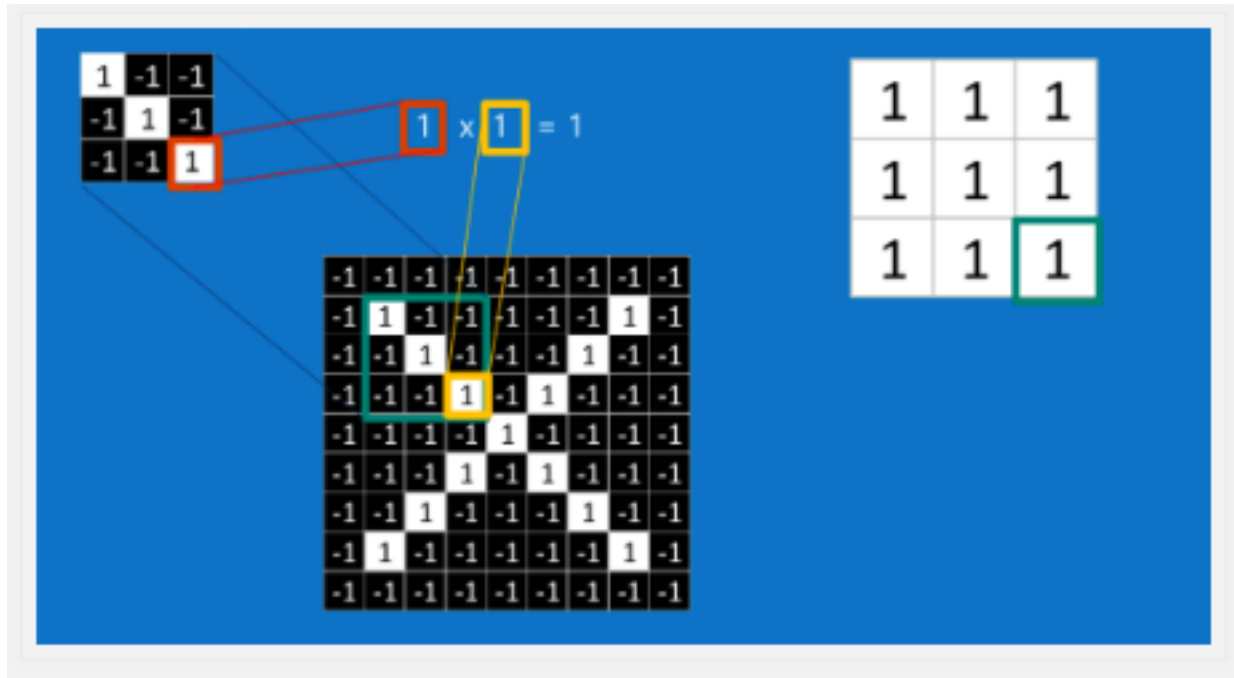




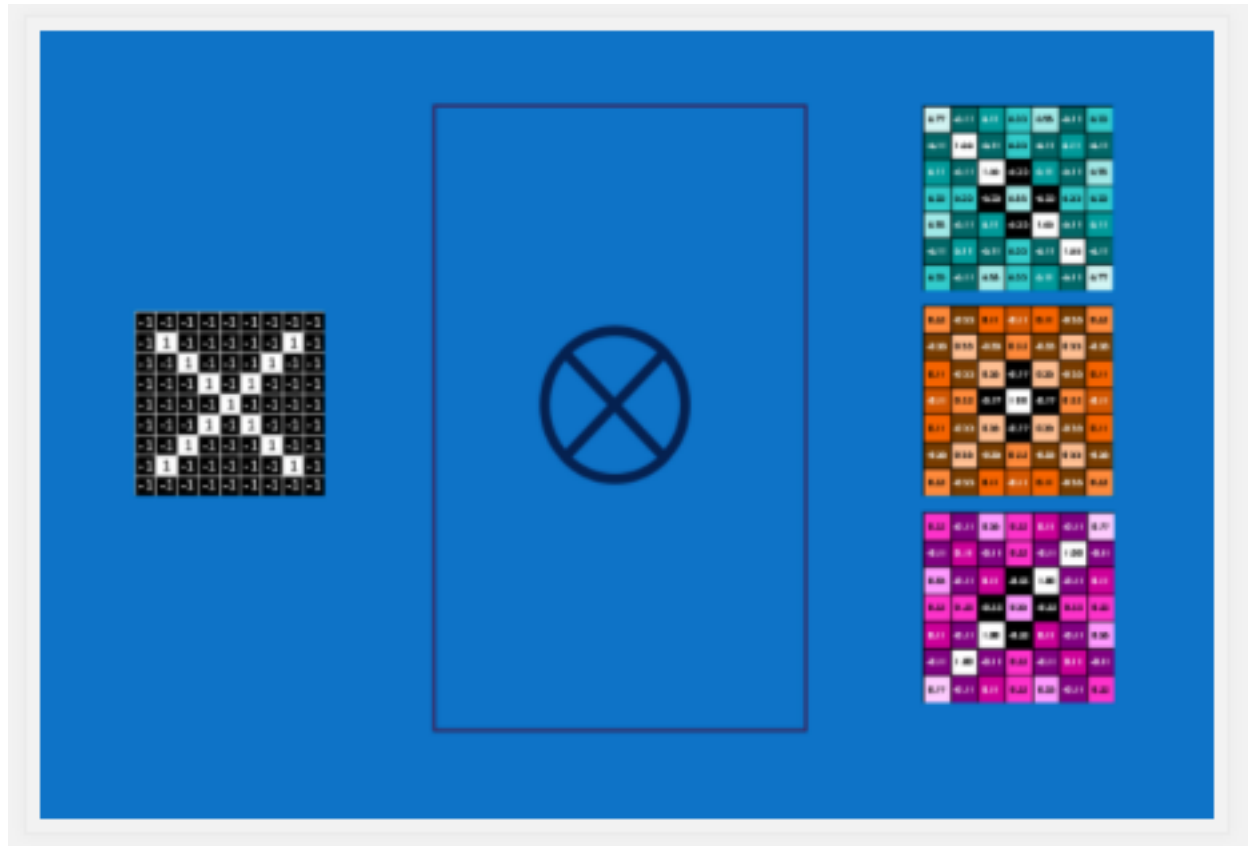
Features



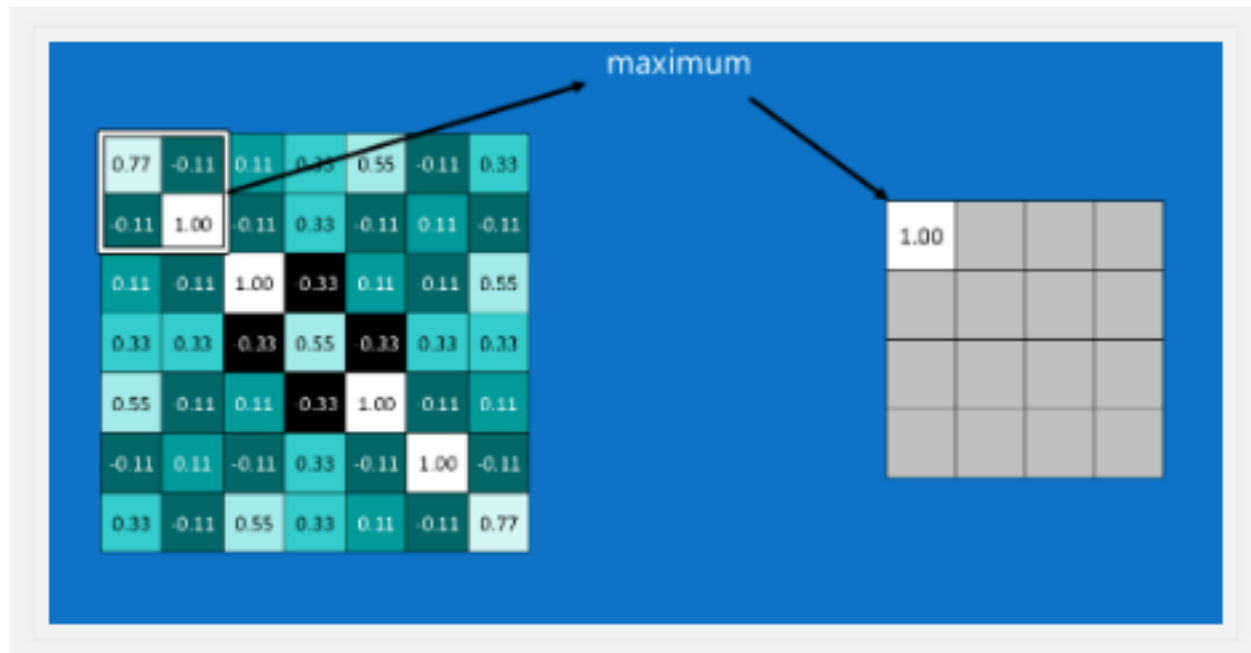
Features



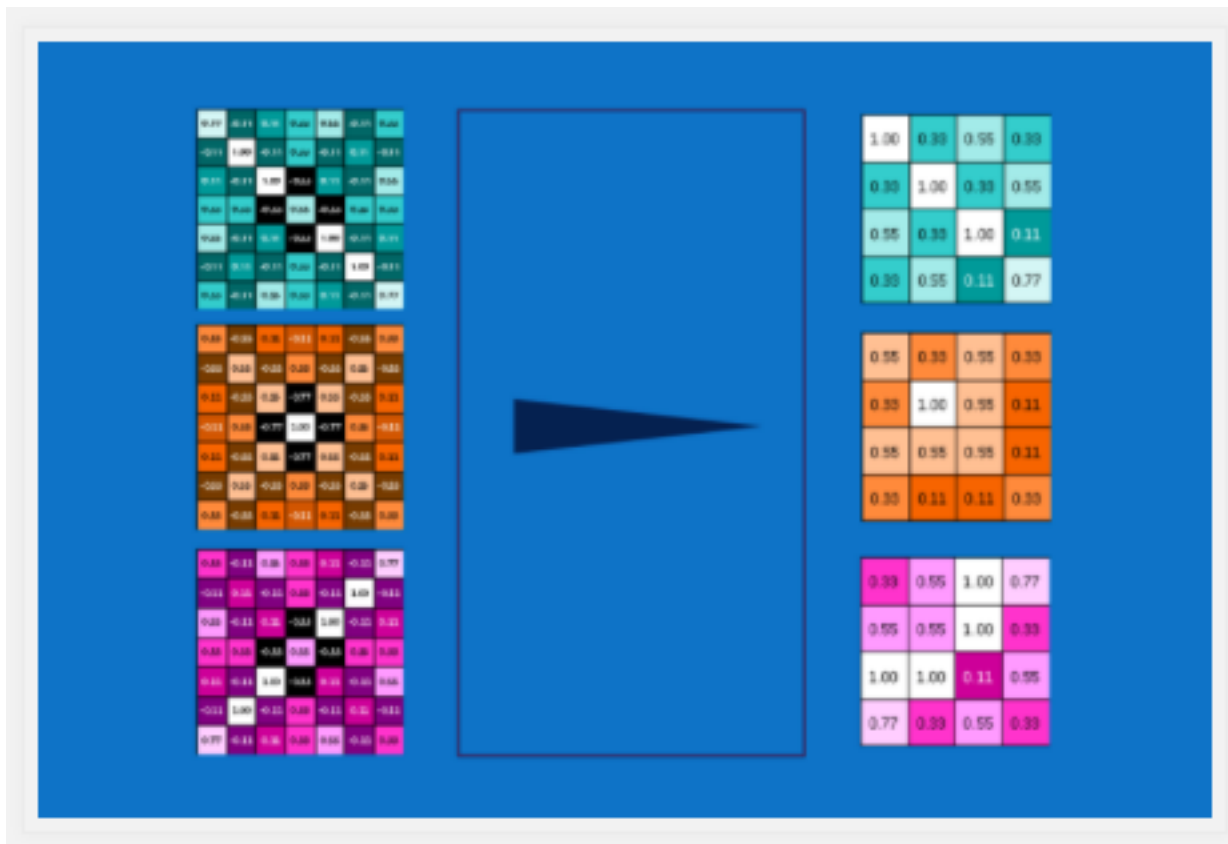
Convolution



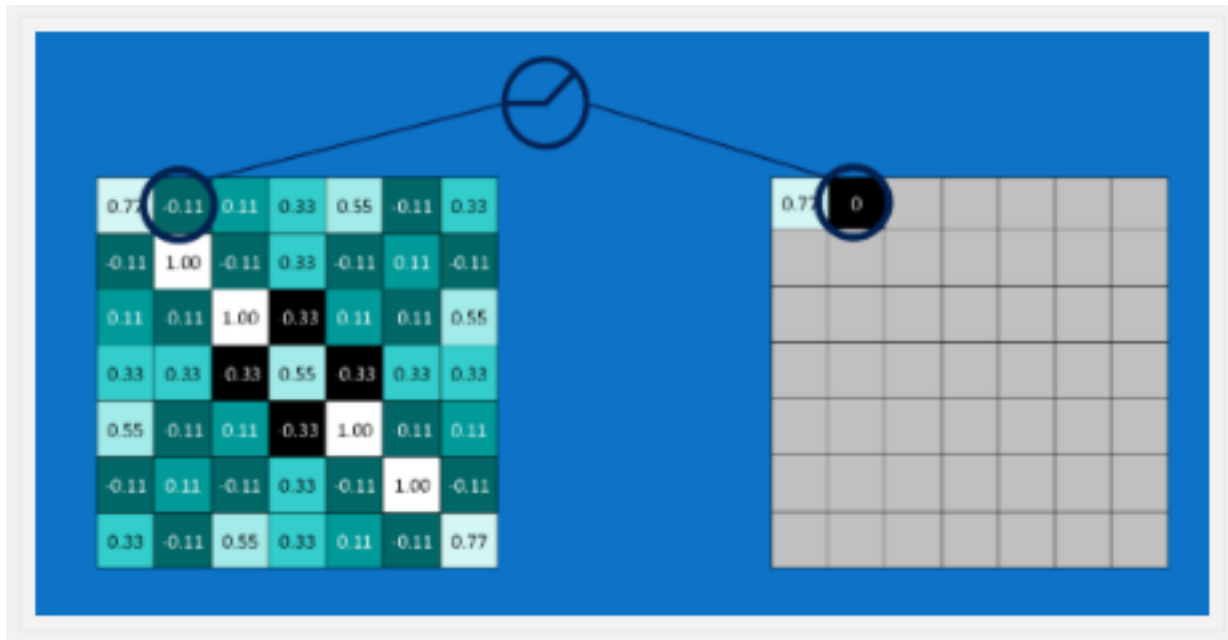
Filtered versions of the image...



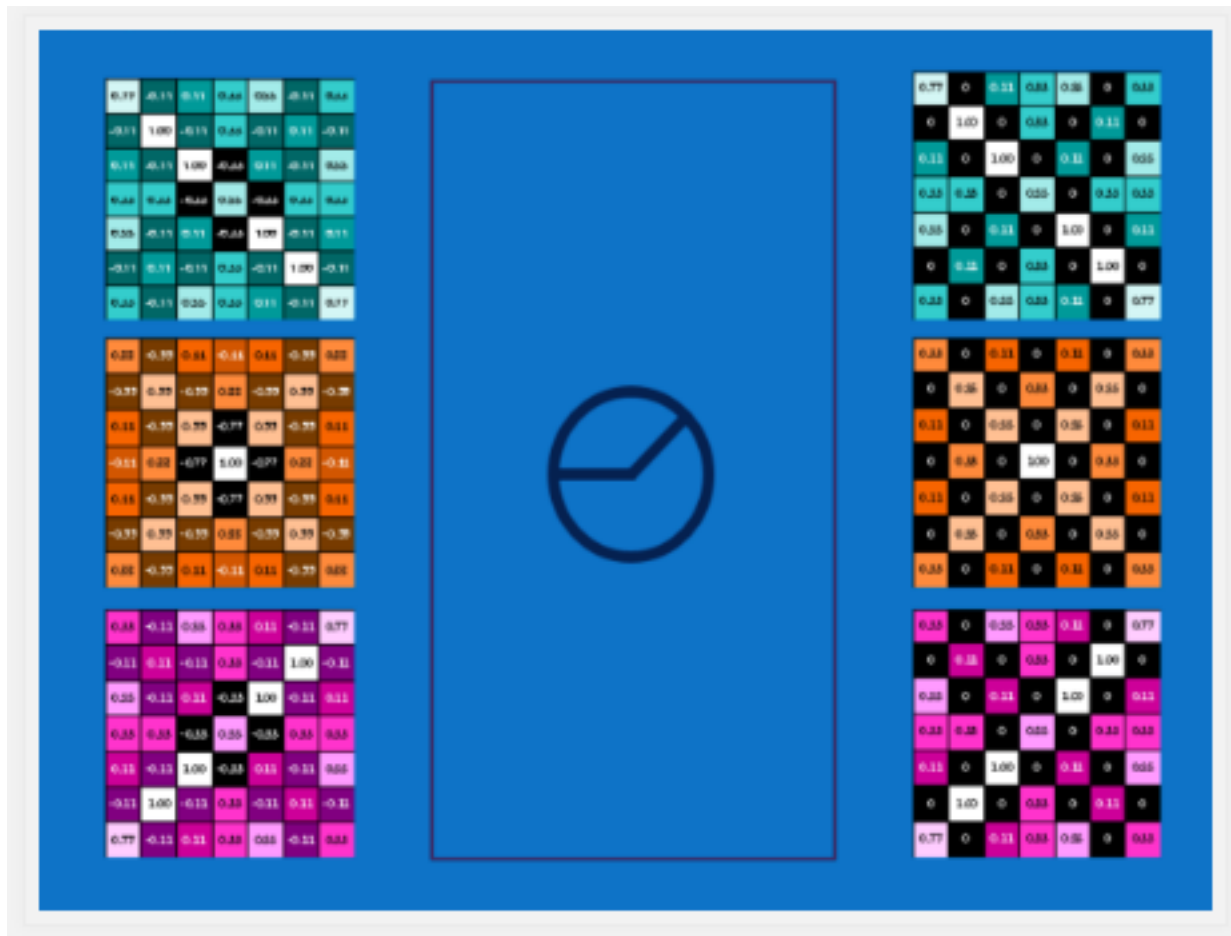
Pooling



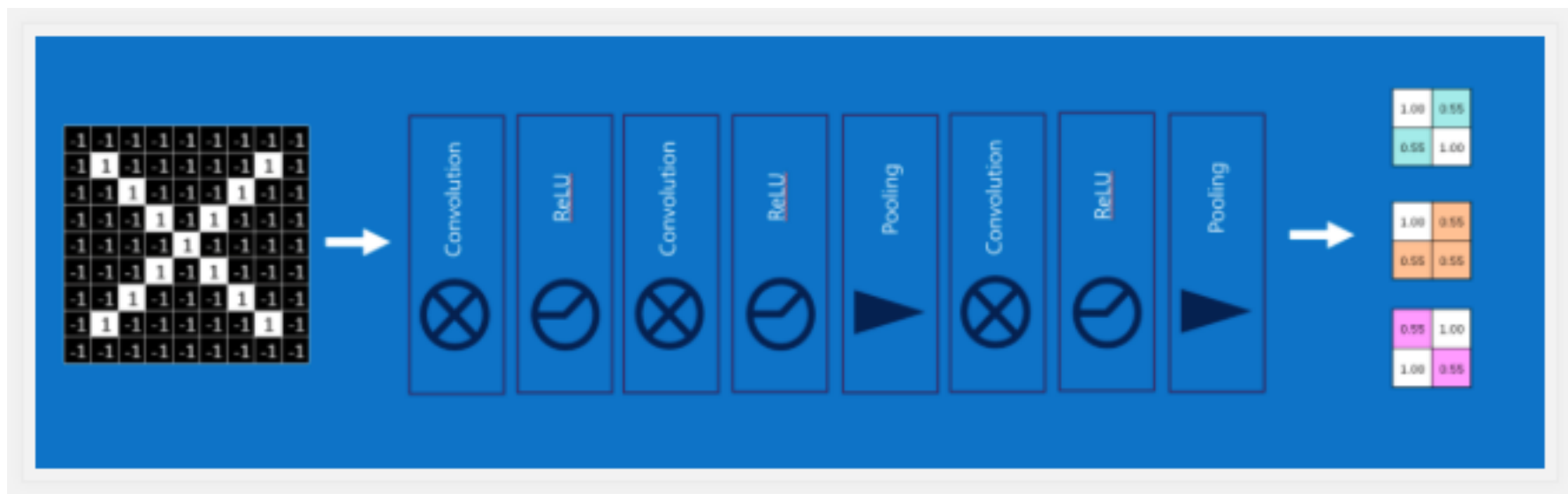
Pooling



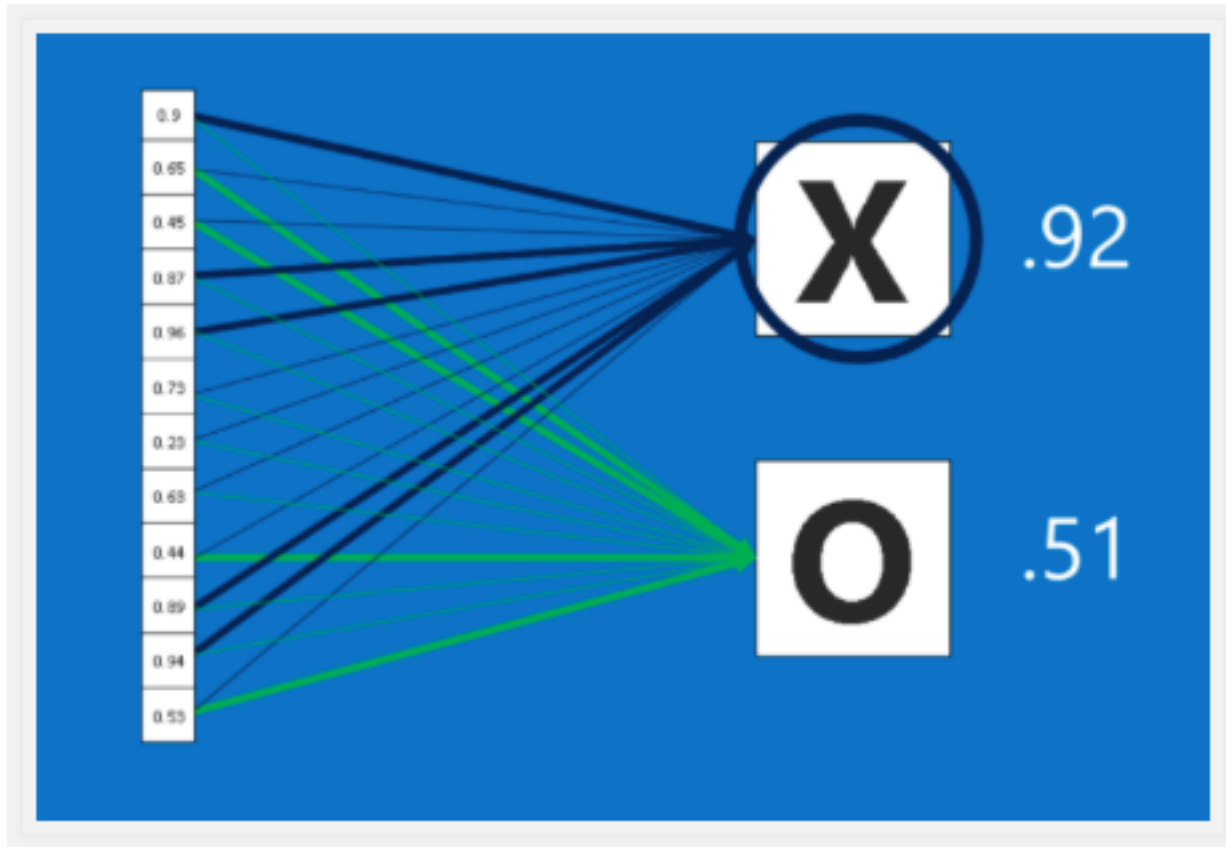
Rectified Linear Units (RLUs)



Rectified Linear Units (RLUs)



Stackable Layers



Fully connected layers



ConvNet Architecture

Upcoming Weeks

Nov 21st - Thanksgiving - **No class on Tuesday**

I will be available on email Monday-Wednesday

Nov 28th - Project Presentations - **Tuesday and Thursday**

Dec 4th - Project Deliverables are due EOD

Dec 8th - Final Exam in this class from 7PM to 10PM

