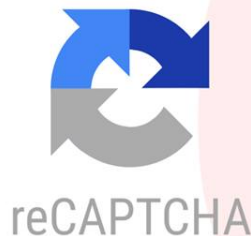


DUBSTECH PRESENTS

HOW TO BREAK GOOGLE CAPTCHA IN 15 MINUTES

may 5 • 5:30 - 7:30 pm

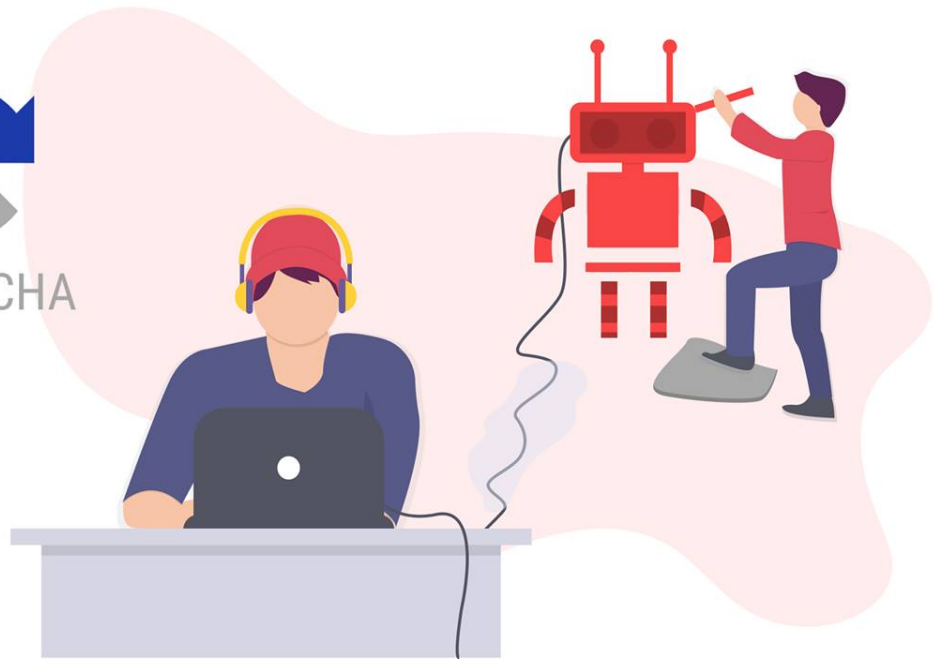
in partnership with **pathrise**



taught by



Saketh Nimmagadda







We teach workshops on design, software development, data science, and cyber security. And we host hackathons too!



Saketh

Data Science Instructor @
DubsTech



A bit about me:

- I'm from San Jose, California
- I'm a third year CSE student
- Interested in AI Safety and the Control Problem
- Have taken a fair amount of Machine Learning related classes this year

Agenda

- Brief overview of image classification
- Review of Machine Learning
- Quick overview of the architecture
- Pre-processing
- Dataset
- Breaking captcha!

Let us get started

Image Classification

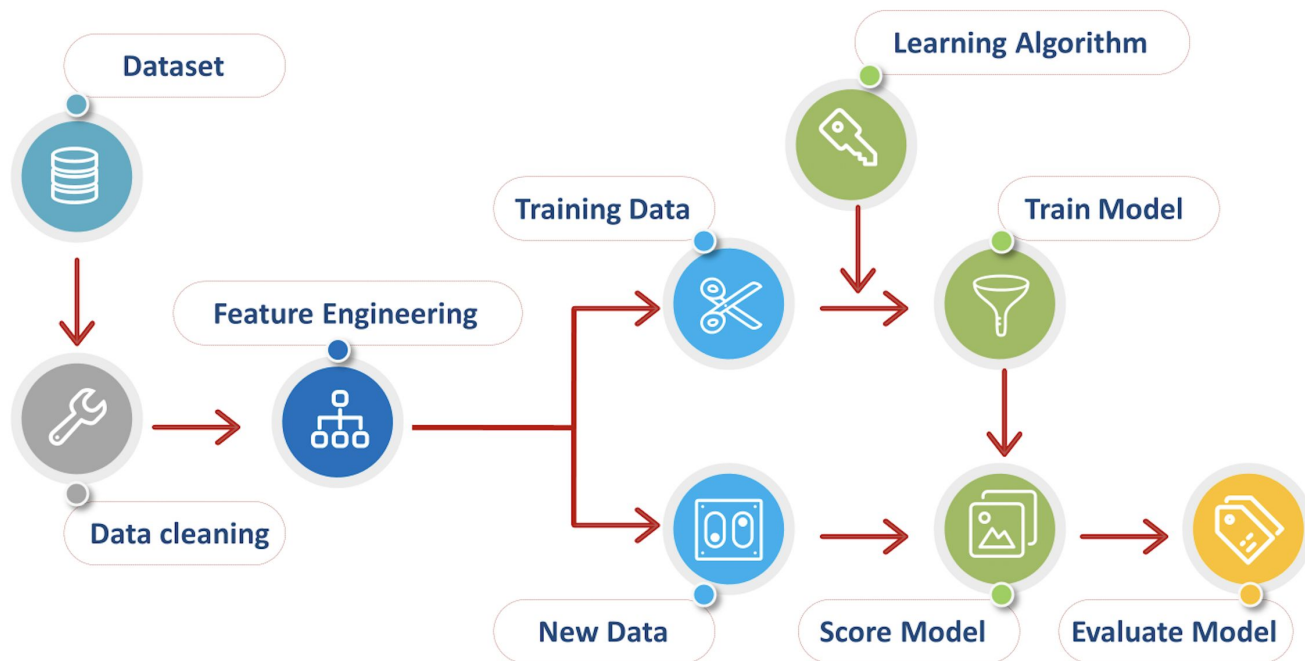
What are in these pictures?



How did you know?

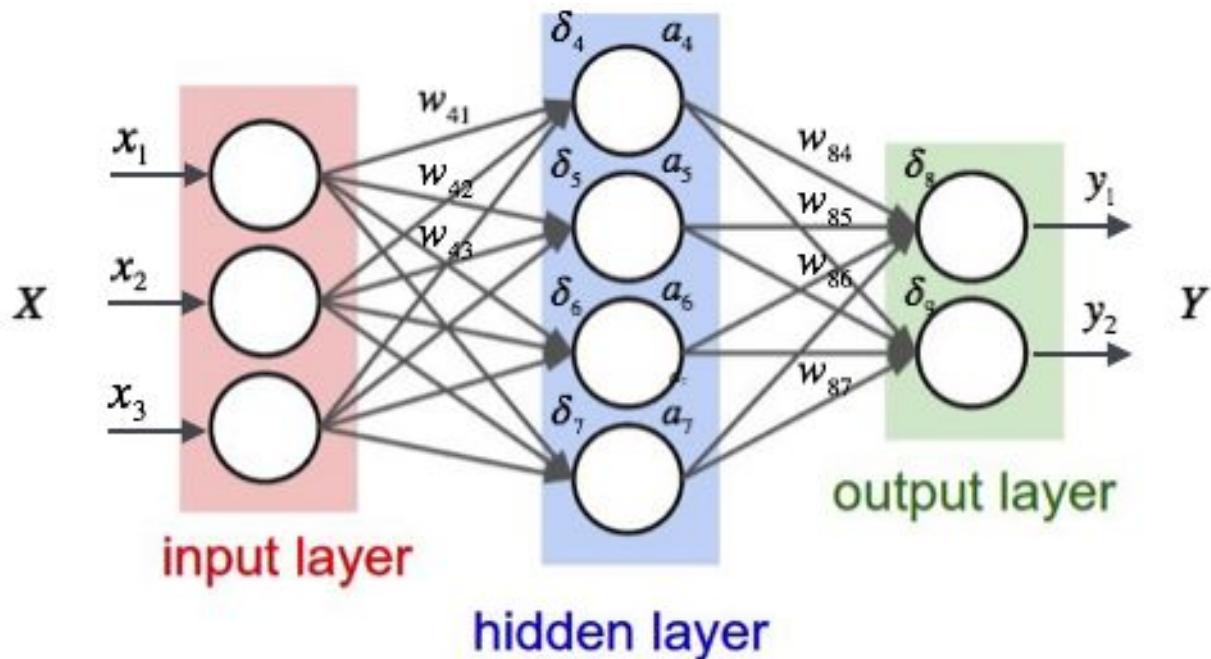
Can you write an algorithm to do this?

Review of Machine Learning



Neural Networks

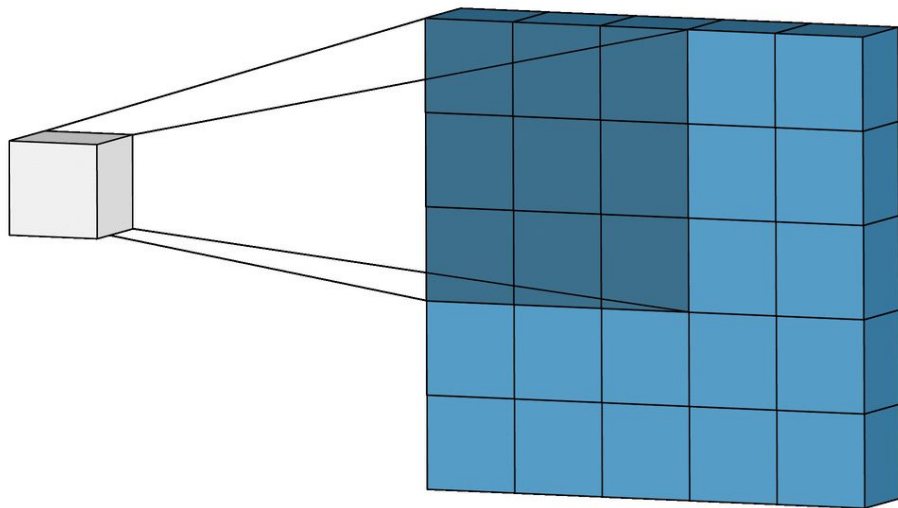
1. Modeled on the human brain



Questions?

Convolutional Neural Networks

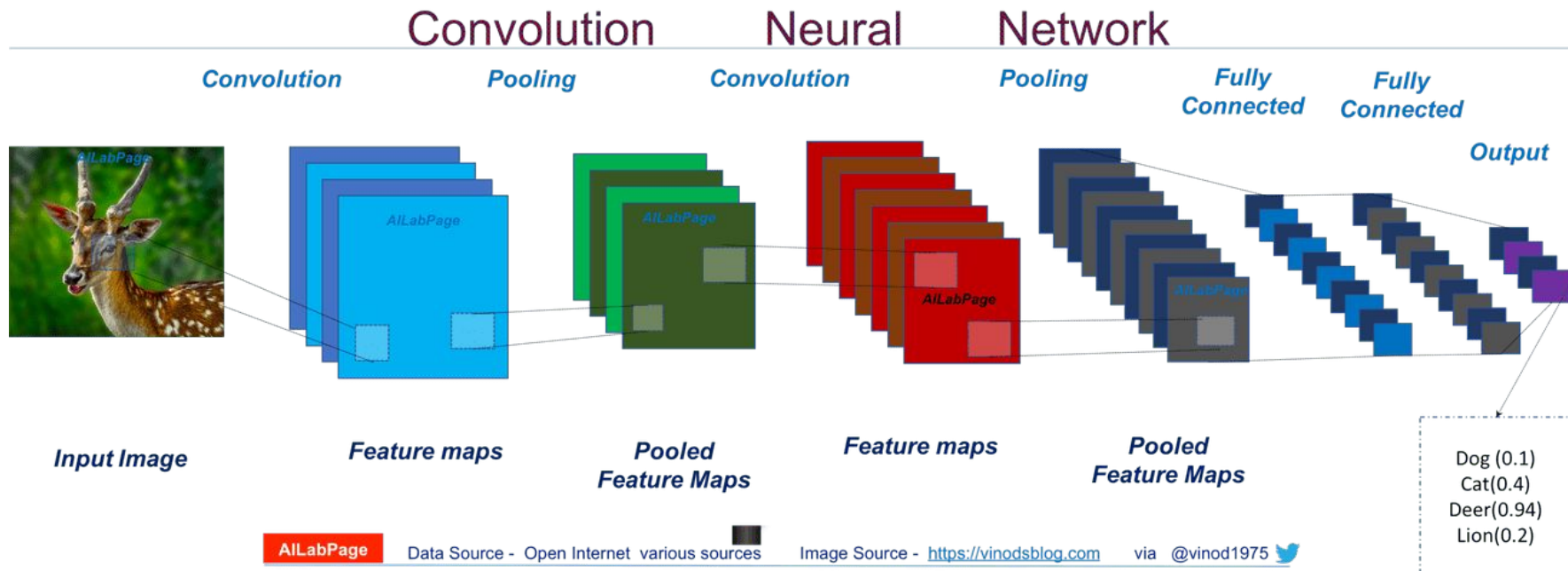
Convolutions



Convolutions cont.

Architecture

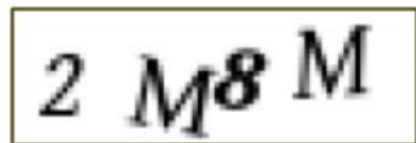
1. Modeled on the human brain's visual cortex



Questions?

Our Goal

Training Input



CAPTCHA image

Expected Output



The correct answer

Dataset

Looks like this

R7 R G

Pre-processing

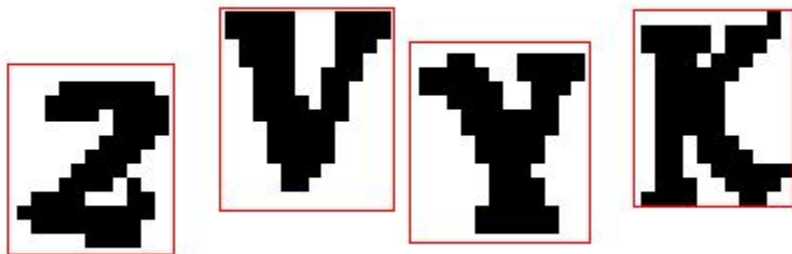
Step 1

z v y k

z v y k

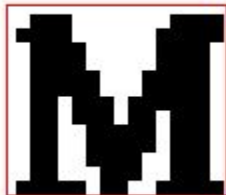
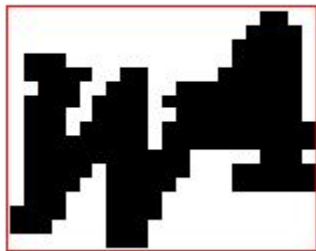
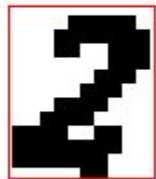
Step 2

2 V Y K



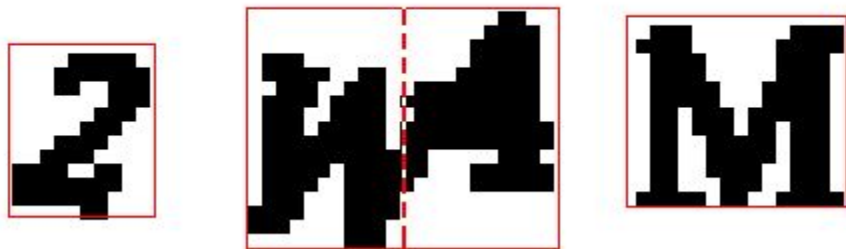
Problem!

2 WA M



Solution

2 WA M



Questions?

Let's Break Captcha!

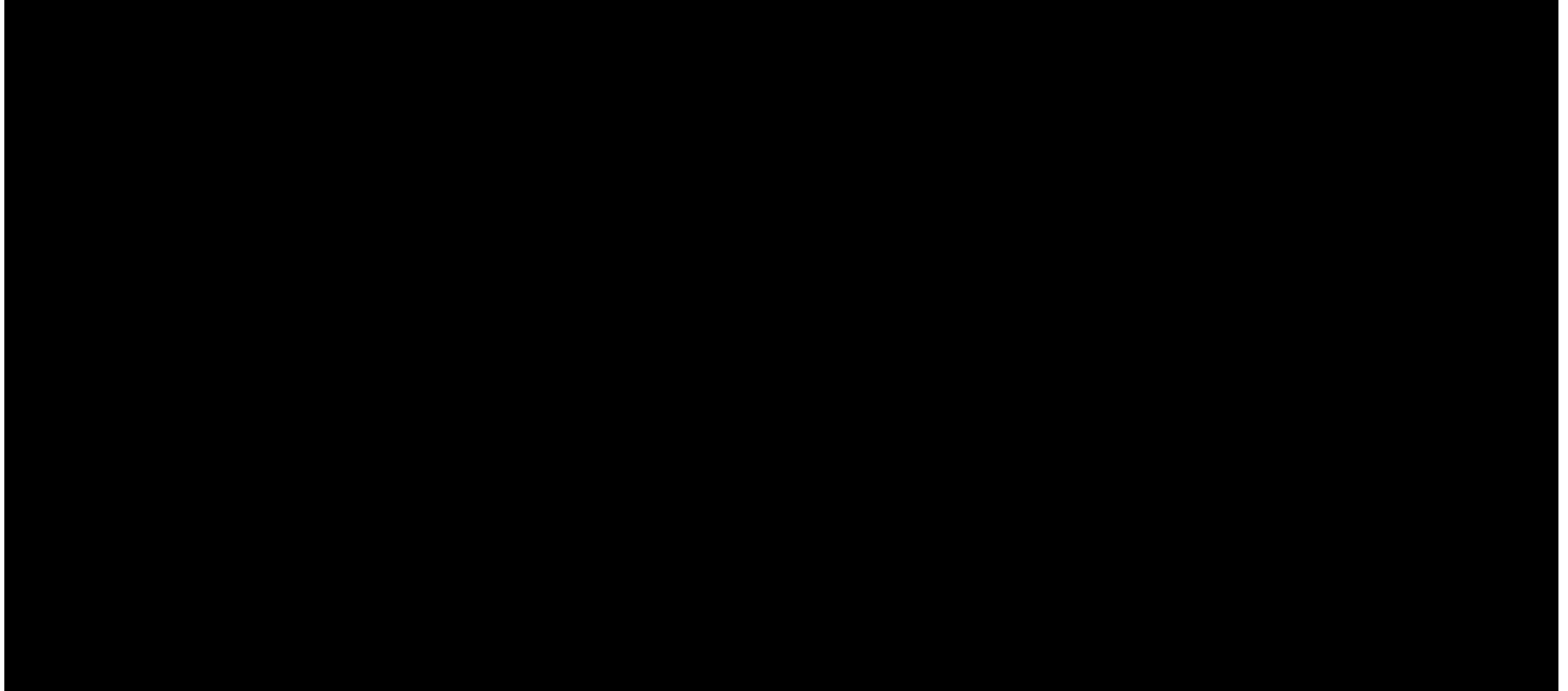
Install Python:
python.org/downloads/

Get the code here:
<https://bit.ly/captcha-break>

Future Work

A Special Thank You to **pathrise**

Apply Now on: bit.ly/pathrise-dubstech



**Please fill in your attendance:
bit.ly/sp20datasci**

Works cited:
<https://bit.ly/captcha-crack>