

The Future of Machine Learning & JavaScript

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Microsoft Cloud Developer Adv x

Guest

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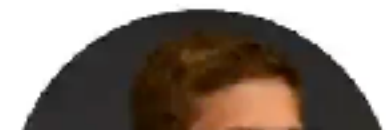
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[@lenadroid](#)
High Scale / Big Data



Anthony Chu
[@nthonychu](#)
.NET



Asim Hussain



Bernd Verst



David Mitchell

<https://aka.ms/jawache-cda>

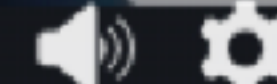
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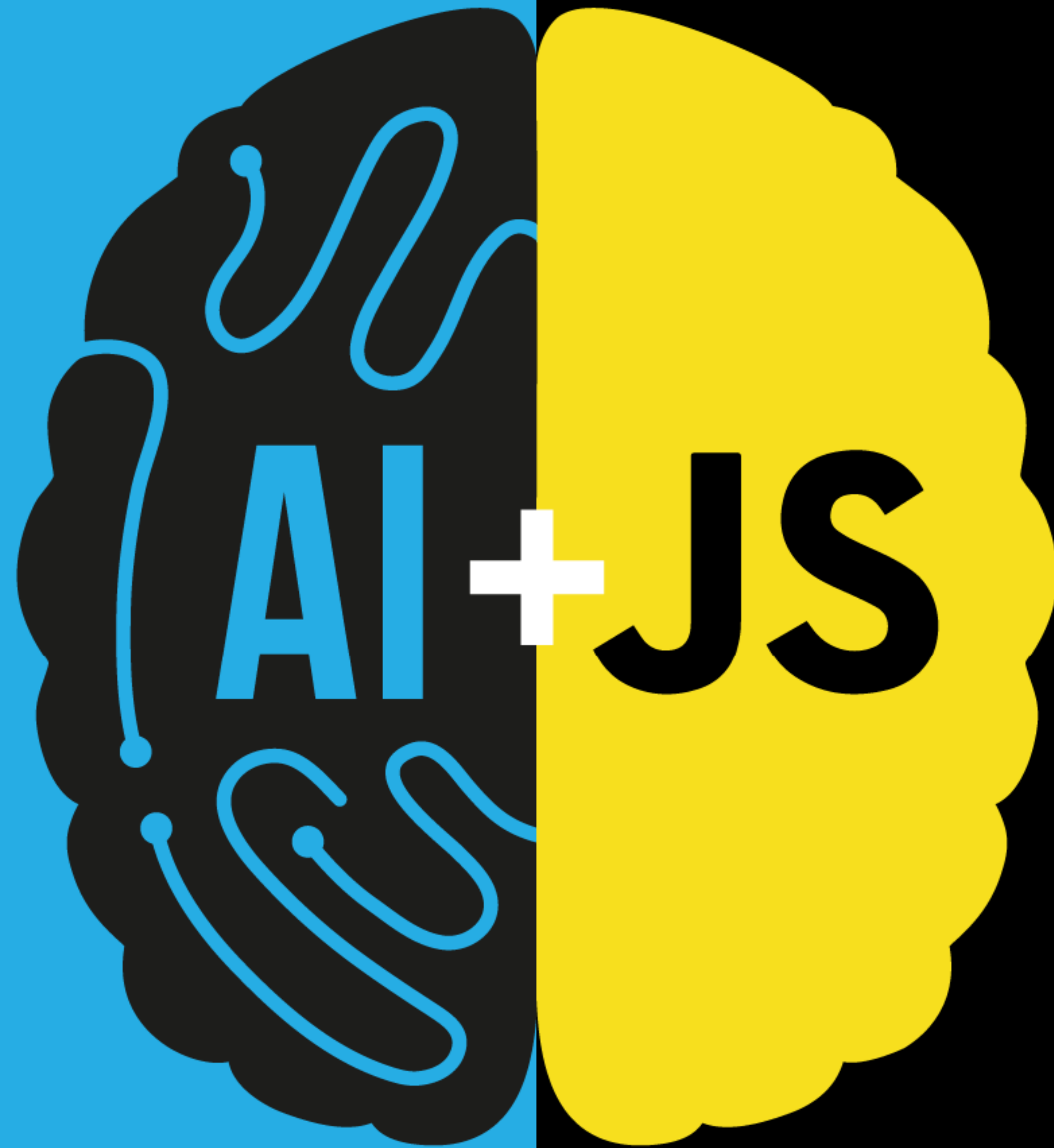
ASIM

My name is awesome and I have over 16 years experience building applications for organizations like



0:15 / 3:31



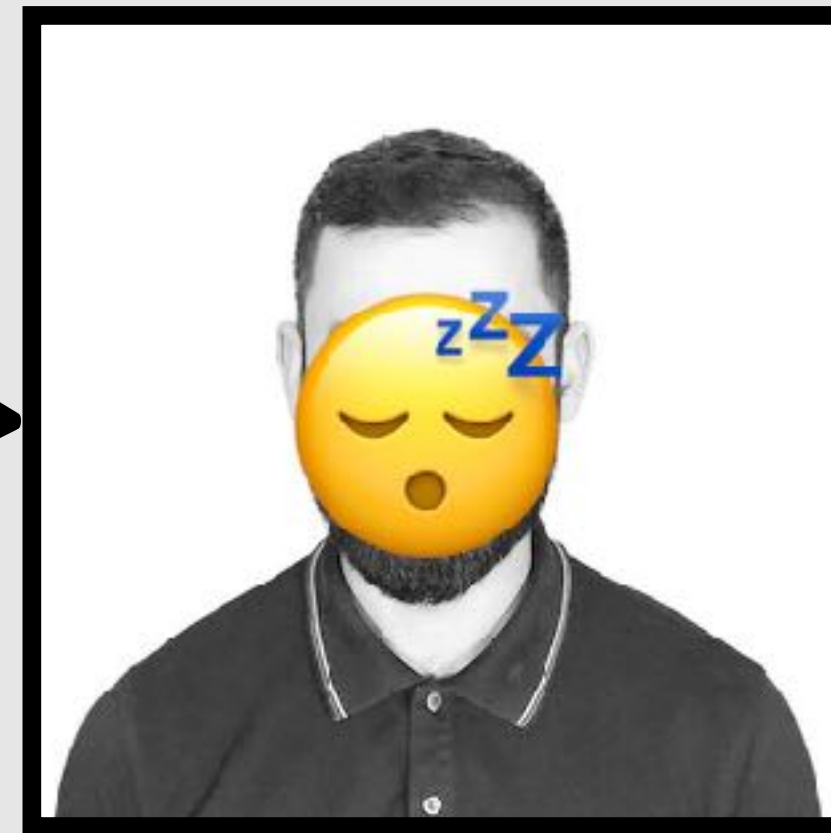
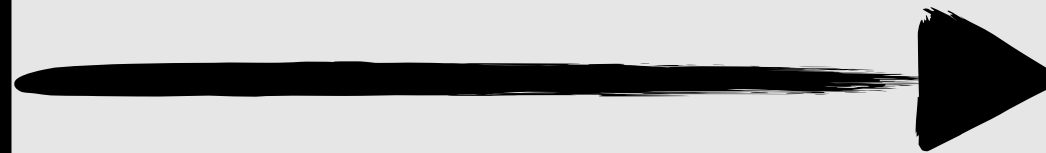


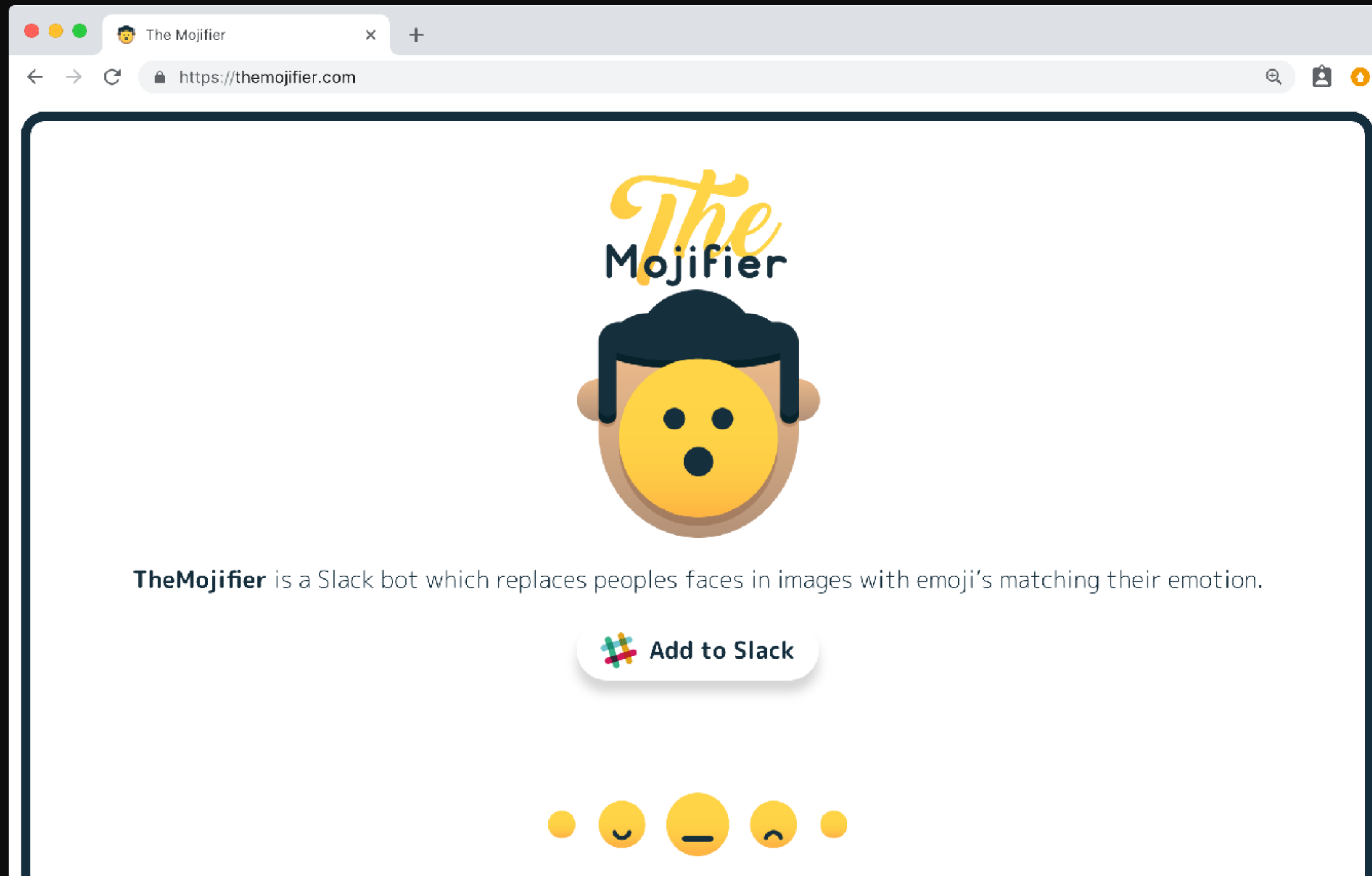
@aijavascript



TheMojifier™

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🔒 empty2

☆ | 👤 1 | ✎ Add a topic



🔍 Search



1



🔒 empty2

You created this private channel today. This is the very beginning of the 🔒 empty2 channel.

✎ Set a purpose + Add an app 👤 Invite others to this private channel

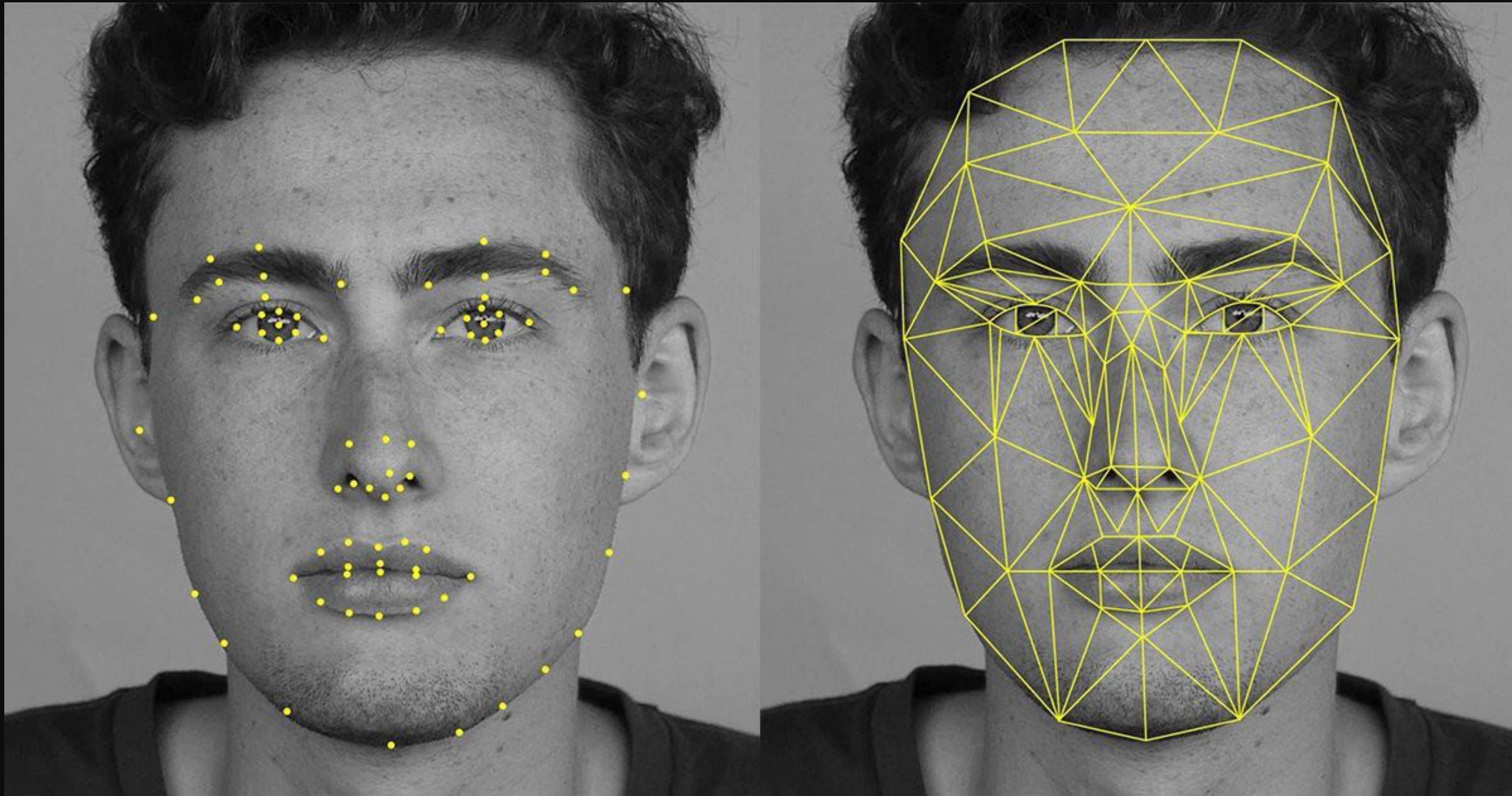


Message empty2



How to Calculate Emotion?

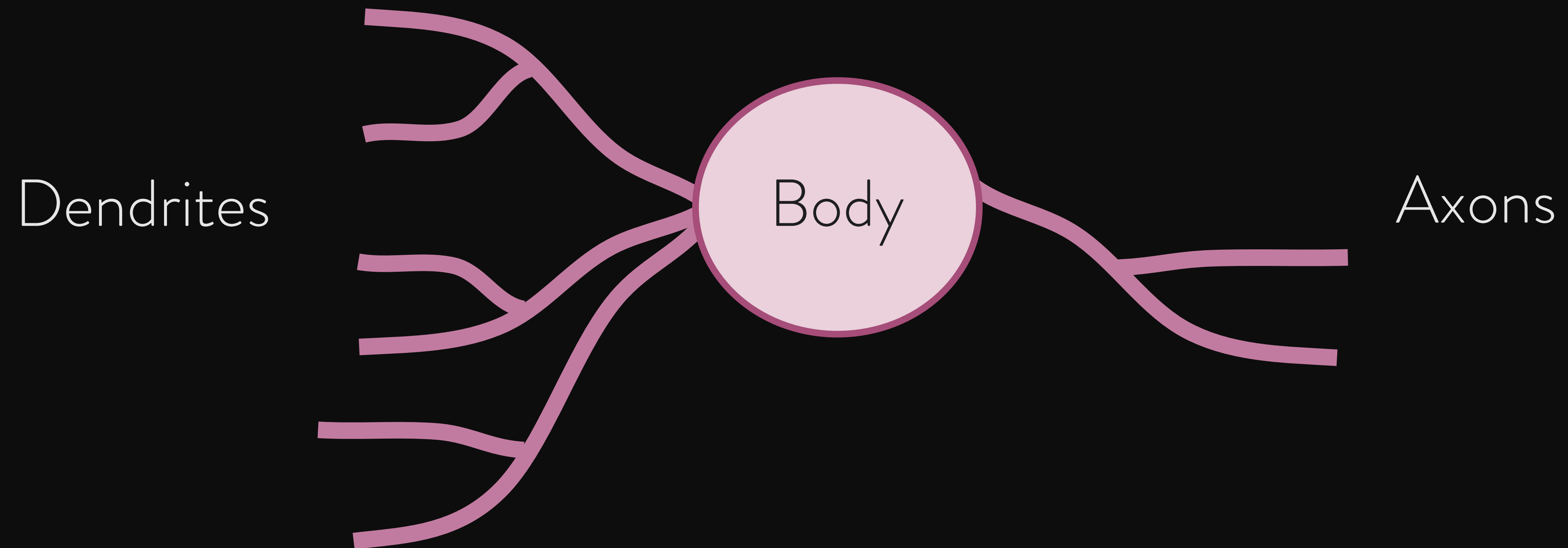
(1) DETECT FACIAL FEATURES



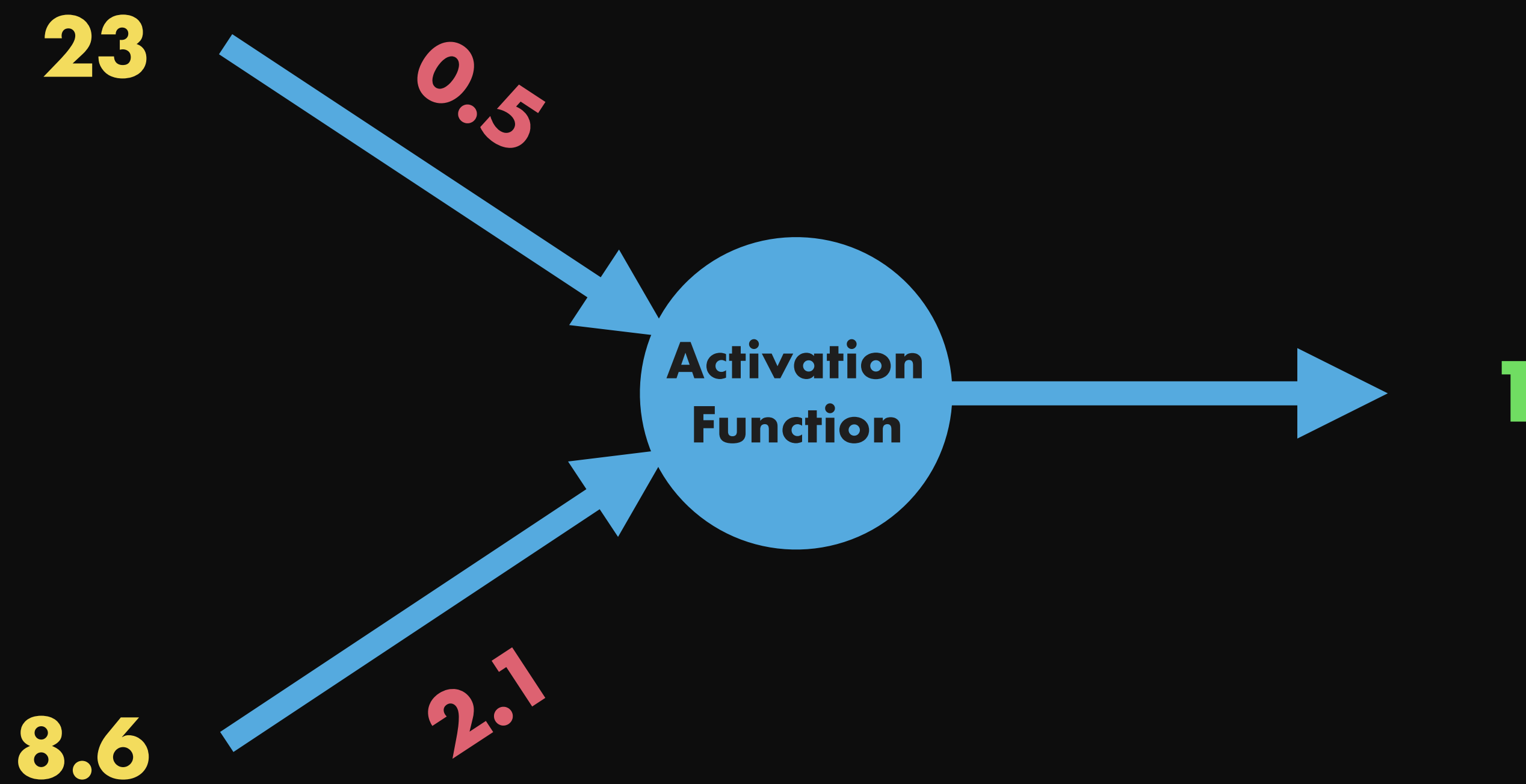
<https://towardsdatascience.com/facial-keypoints-detection-deep-learning-737547f73515>

(2) USE A NEURAL NETWORK

Neural Networks



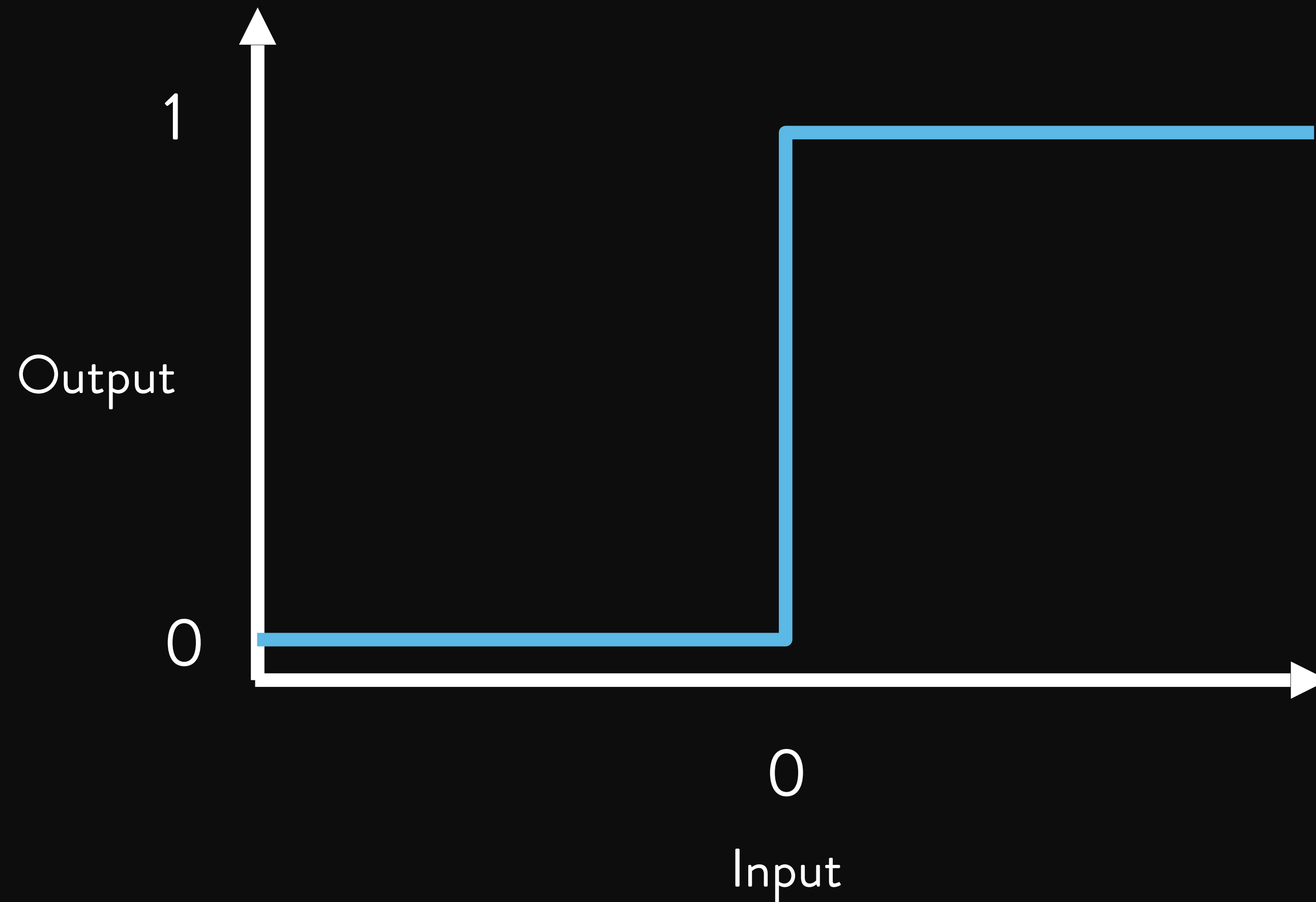
Neural Networks



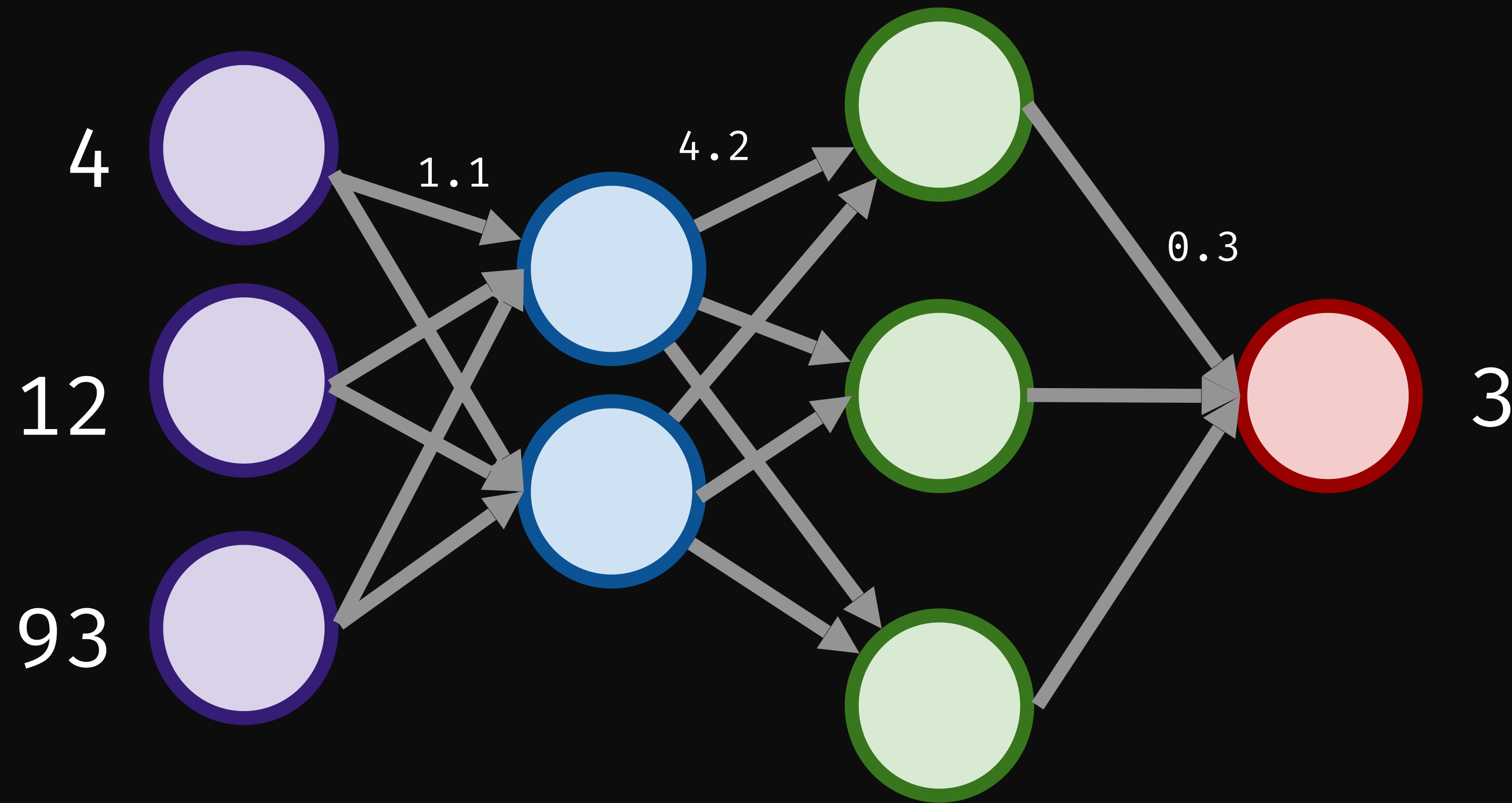
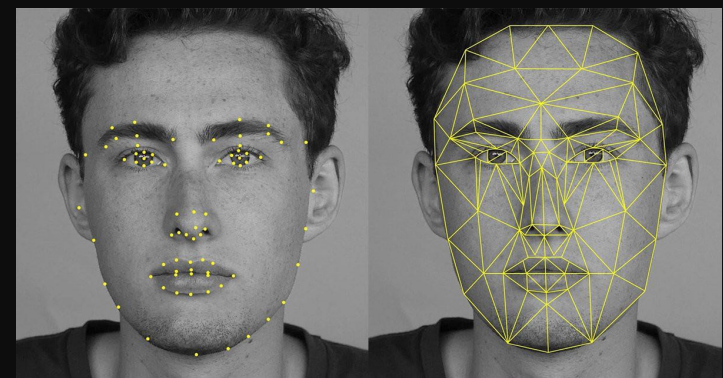
Neural Networks

$$\begin{array}{l} 23 \times 0.5 = 11.5 \\ 8.6 \times 2.1 = 18.06 \end{array} \left. \vphantom{\begin{array}{l} 23 \times 0.5 = 11.5 \\ 8.6 \times 2.1 = 18.06 \end{array}} \right\} 29.56 \rightarrow \text{activation(...)} \rightarrow 1$$

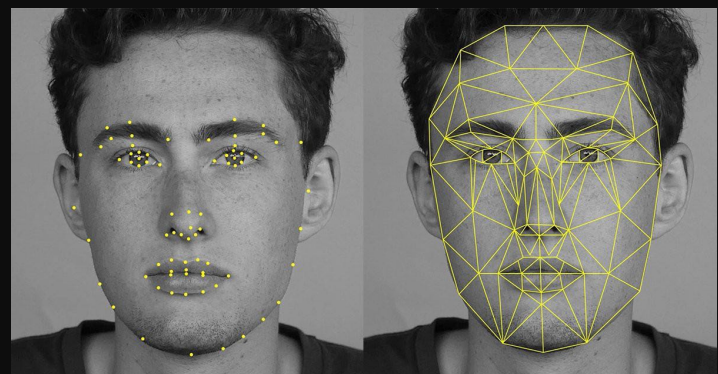
Neural Networks



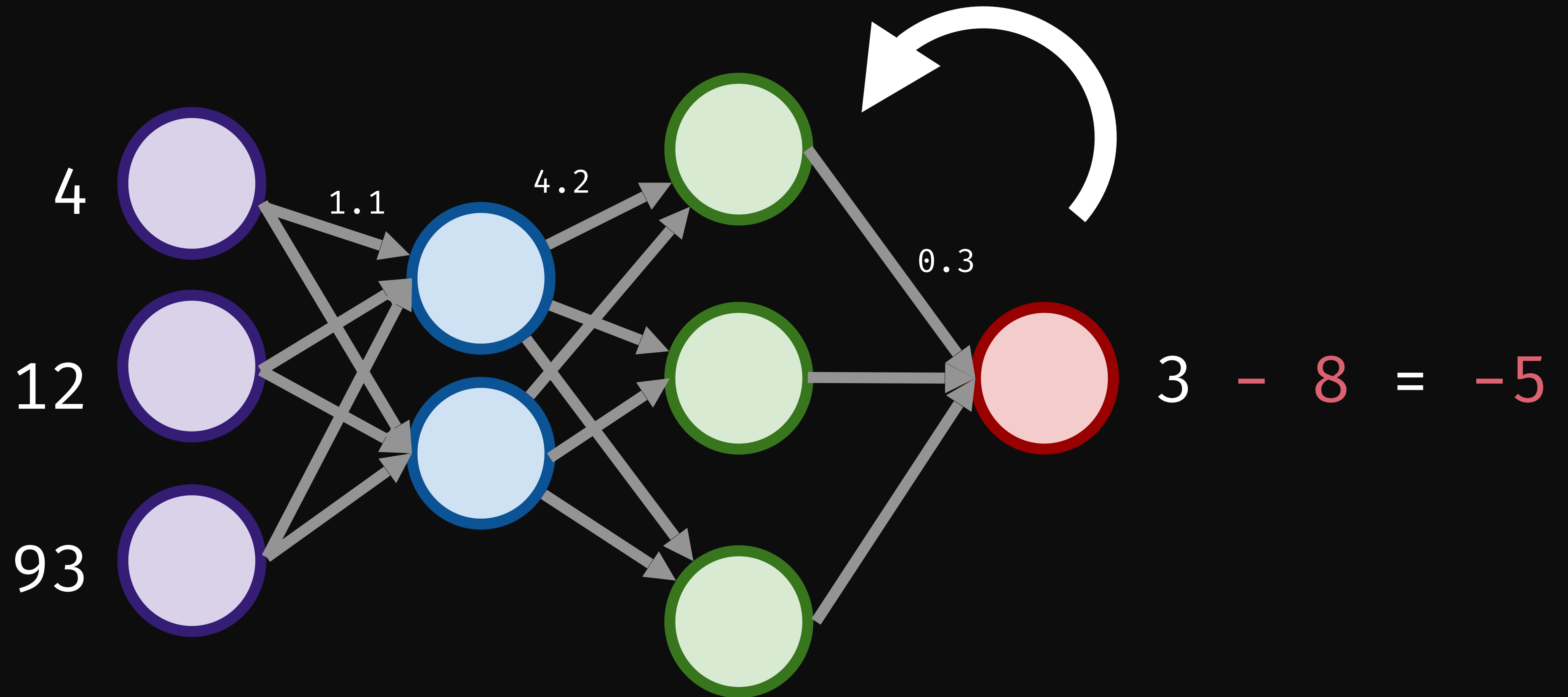
Neural Networks



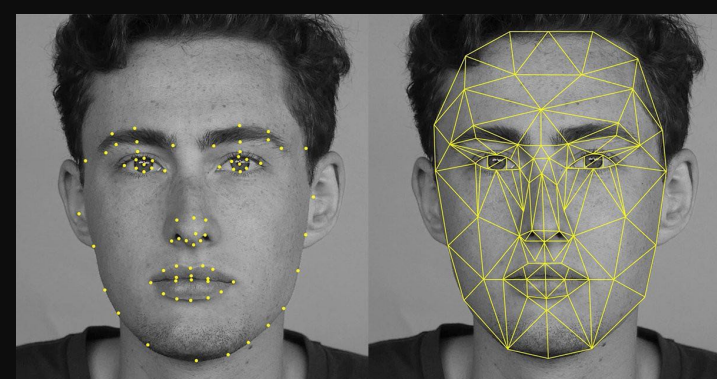
Neural Networks



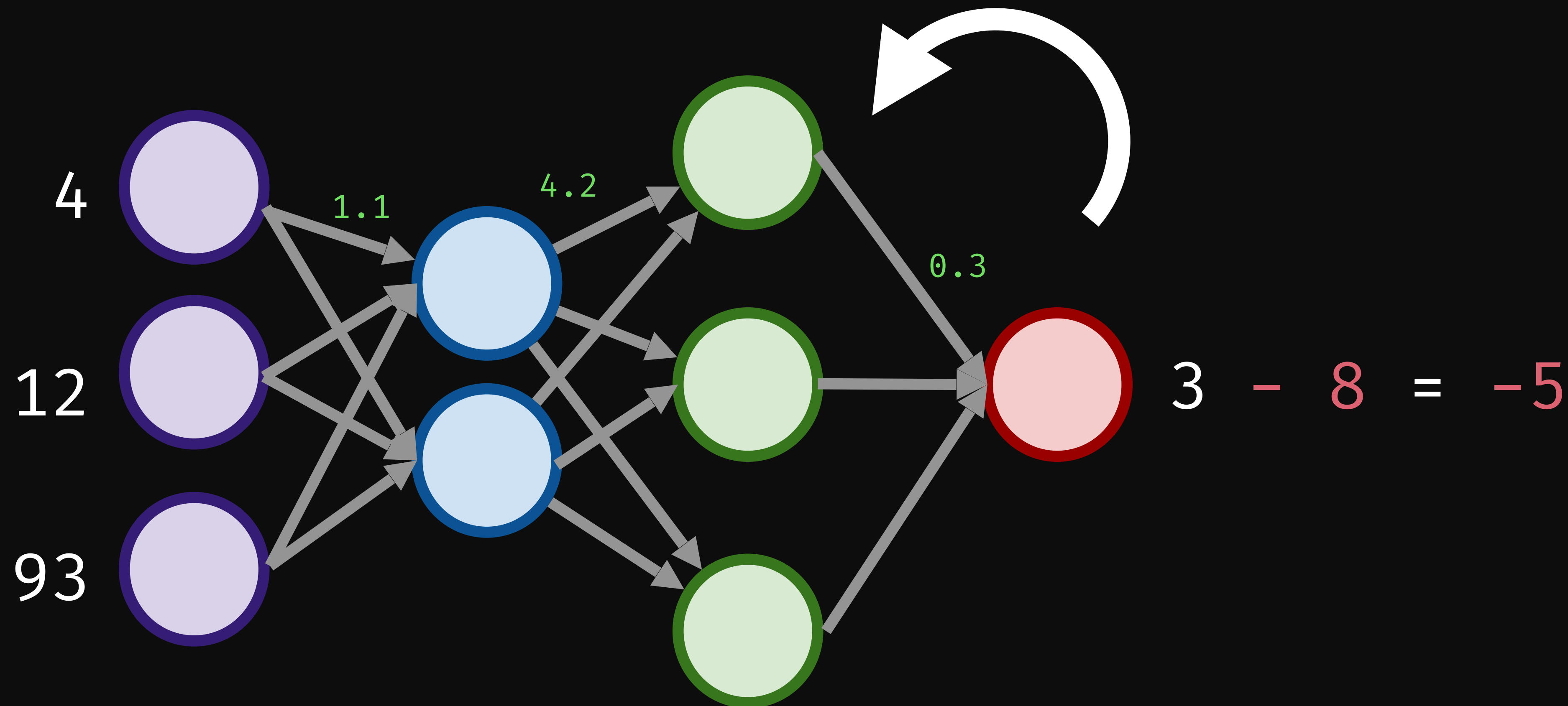
8



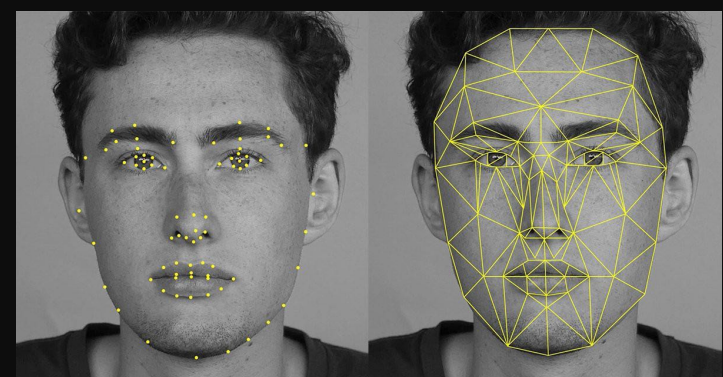
Neural Networks



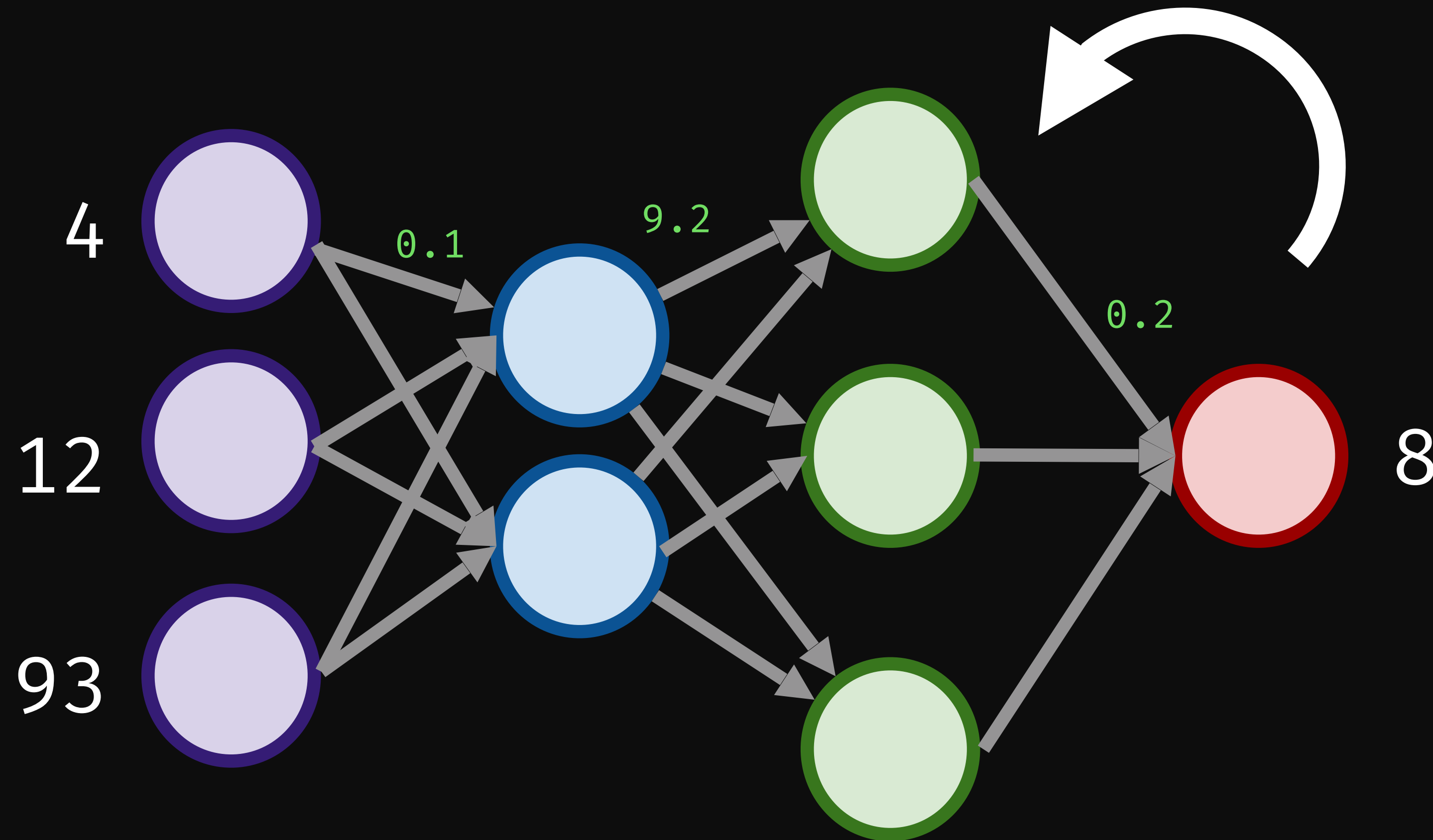
8



Neural Networks



8



Face API - Facial Recognition S x Guest

Secure | <https://azure.microsoft.com/en-us/services/cognitive-services/face/>

Microsoft Azure

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Face

- ✓ Detect human faces and compare similar ones
- ✓ Organize images into groups based on similarity
- ✓ Identify previously tagged people in images

[Try Face >](#)

Explore Cognitive Services: [Documentation](#) [API reference](#) [SDK](#) [Pricing](#) [Portal](#) [Try Face API](#) [Stack Overflow](#) [Roadmap](#)

Face verification

Check the likelihood that two faces belong to the same person. The API will return a confidence score about how likely it is that the two faces belong to one person.

<https://azure.microsoft.com/services/cognitive-services/face/>

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```
https://<region>.api.cognitive.microsoft.com/face/v1.0/detect
```

```
{  
  "url": "<path-to-image>"  
}
```

```
[
  {
    "faceRectangle": {
      "top": 207,
      "left": 198,
      "width": 229,
      "height": 229
    },
    "faceAttributes": {
      "emotion": {
        "anger": 0.001,
        "contempt": 0.014,
        "disgust": 0,
        "fear": 0,
        "happiness": 0.306,
        "neutral": 0.675,
        "sadness": 0.003,
        "surprise": 0.001
      }
    }
  }
]
```

Summary

Summary

- Neural Networks are incredibly powerful
- Conceptually, they are simple to understand

I'm Fine

Tensorflow, Mobilenet & I'm fine

A PEN BY Oliver Turner

Fork Settings Change View Log In Sign Up

HTML

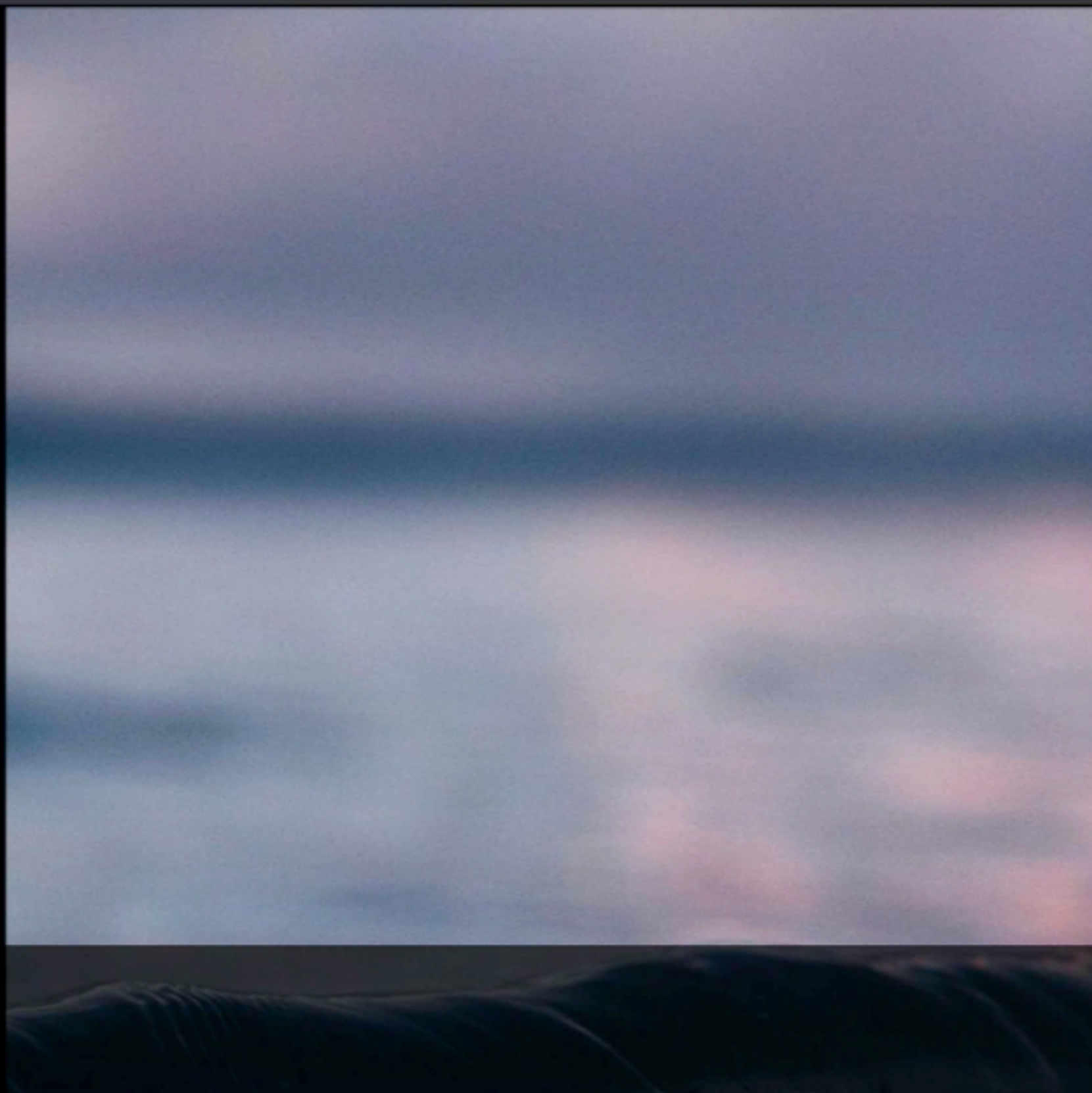
```
1 <figure class="gallery">
2   <div class="gallery__frame displaytext
  loading">
3     loading mobilenet neural network
```

CSS (SCSS)

```
1 @keyframes fade-up {
2   to {
3     opacity: 1;
4   }
```

JS

```
1 class GalleryUI {
2   constructor(props) {
3     this.props = props;
4 }
```



8.65% fountain
7.77% hay
7.37% wing

Azure + Puppies + I'm Fine

Custom topic Search





TensorFlow.js



```
import * as tf from '@tensorflow/tfjs';
```



```
<html>
  <head>
    <script src="https://cdn.jsdelivr.net/npm/@tensorflow/tfjs@0.8.0"> </script>
  </head>
</html>
```

TensorFlow.js

Train models



```
const model = tf.model({\*...\*});  
  
await model.fit(xData, yData, {  
  batchSize: batchSize,  
  epochs: epochs,  
});
```

Load pre-trained models



```
const model = await tf.loadModel("model.json");
```

MobileNet



```
import * as mobilenet from '@tensorflow-models/mobilenet';

const img = document.getElementById('img');

// Load the model.
const model = await mobilenet.load();

// Classify the image.
const predictions = await model.classify(img);

console.log('Predictions: ');
console.log(predictions);
```

Image Processing with the Com x

https://azure.microsoft.com/en-us/services/cognitive-services/computer-vision/

Microsoft Azure

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Computer Vision

Extract rich information from images to categorize and process visual data—and perform machine-assisted moderation of images to help curate your services.

Try the Computer Vision API >

Explore Computer Vision: Documentation API SDK Pricing Portal Try Computer Vision Stack Overflow

carbon (30).png ^ carbon (29).png ^

Show All x

<https://azure.microsoft.com/services/cognitive-services/computer-vision/>

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Dynamically Generated Alt Text

+

https://codepen.io/jawache/full/qzWwyx

Dynamically Generated Alt Text with Azure's Computer Vi...

A PEN BY Asim Hussain

Fork

Change View

Sign Up

Log In

Dynamically Generated Alt Text

With Azure's Computer Vision API

Check out the docs →

Try it again!

More info...

Alt text:

Mackenzie Davis et al. standing in front of a building

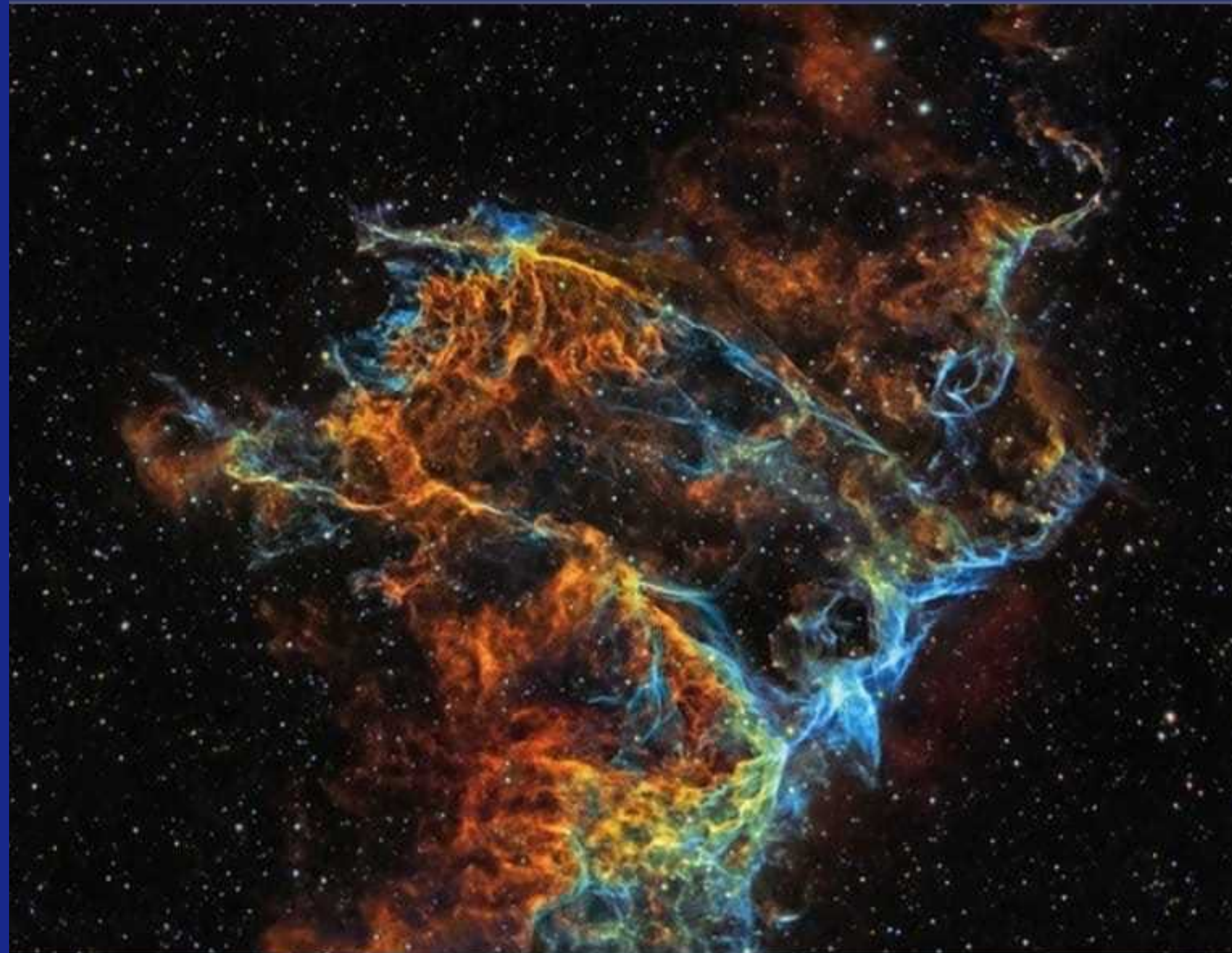


<https://codepen.io/sdras/full/jawPGa/>

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Alt text:

A star filled sky, the text says: "4ㅍㅍ."



<https://twitter.com/ollee/status/930303340516216832>

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Alt text:

A group of stuffed animals on a bed



<https://twitter.com/FrontendNE/status/930120267992616960>

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Alt text:

A man and a dog posing for the camera



<https://twitter.com/chrispiecom/status/930407801402347520>

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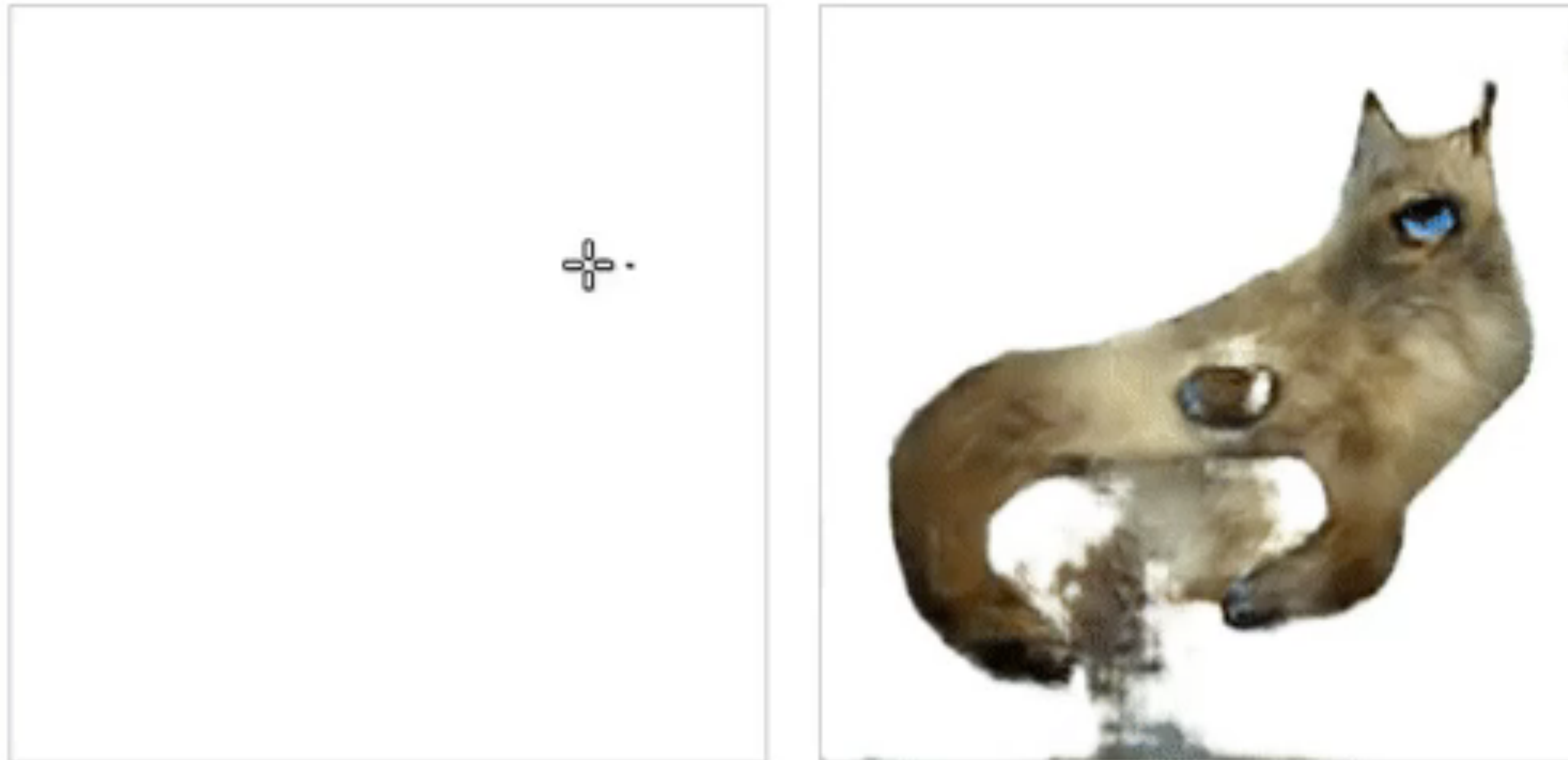
Summary

Summary

- TensorFlow.js doesn't have any dependencies
- MobileNet is a simple way to analyse images
- Azure Computer Vision API 

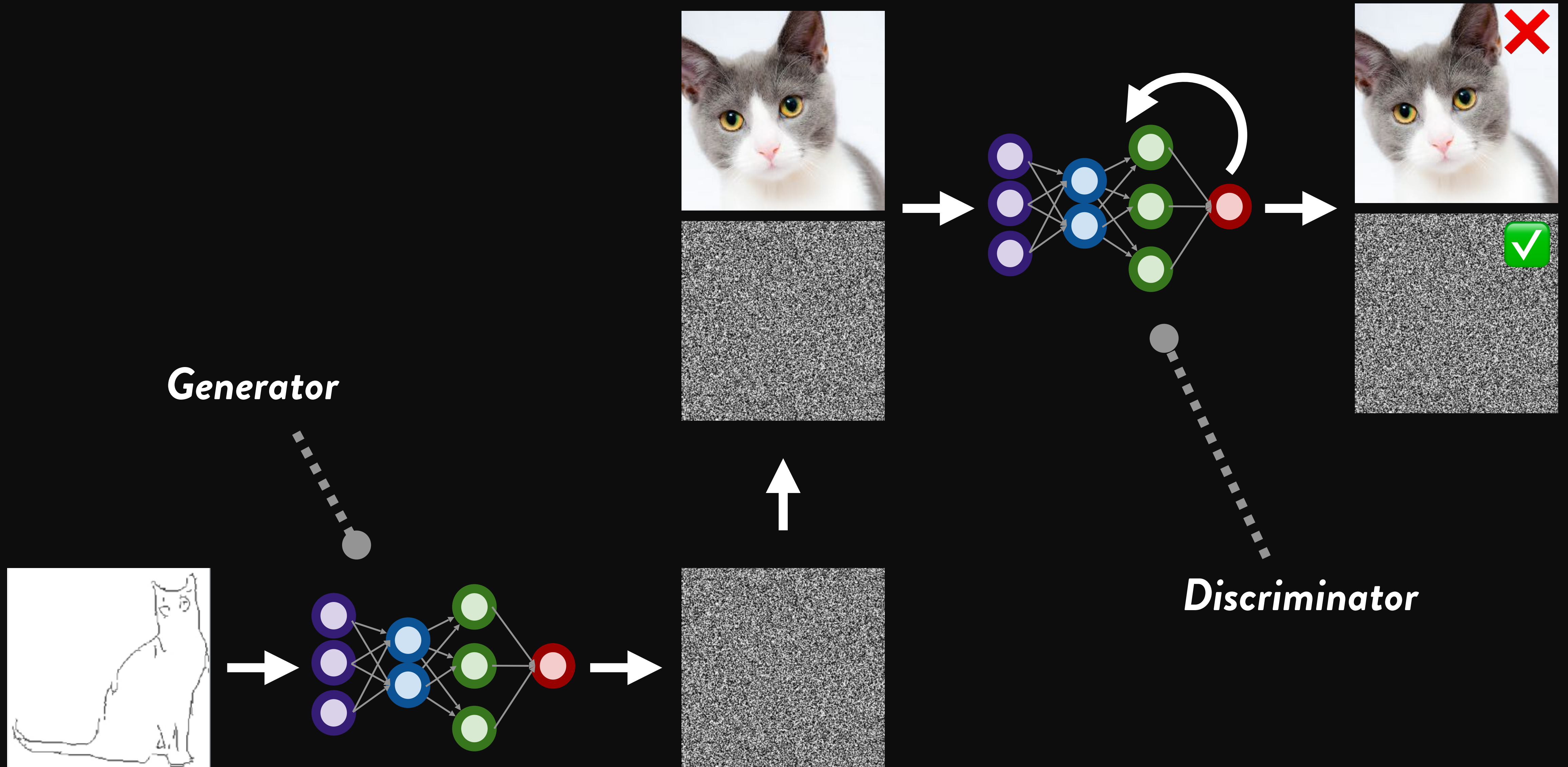
Image2Image

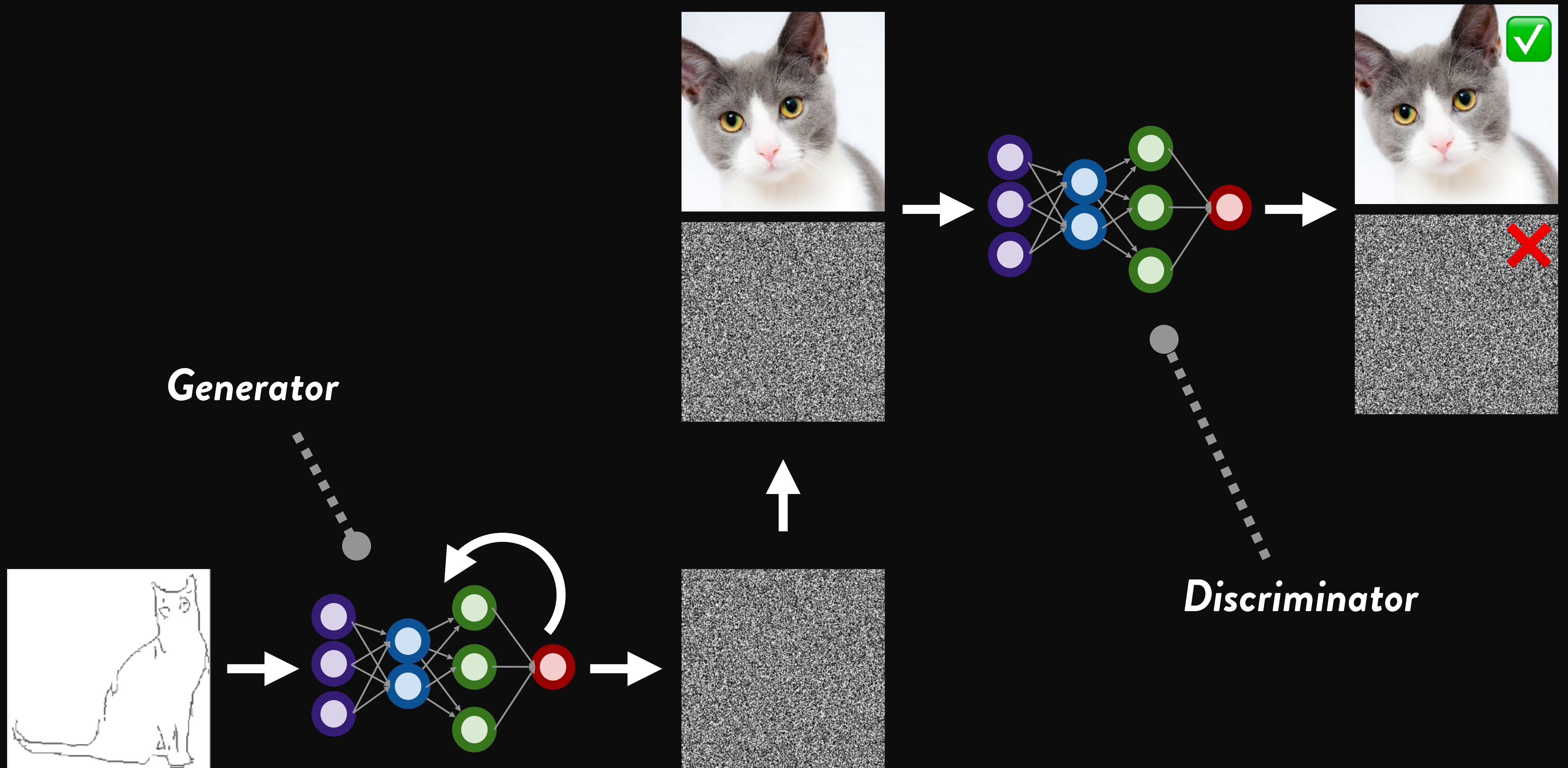
Model Loaded

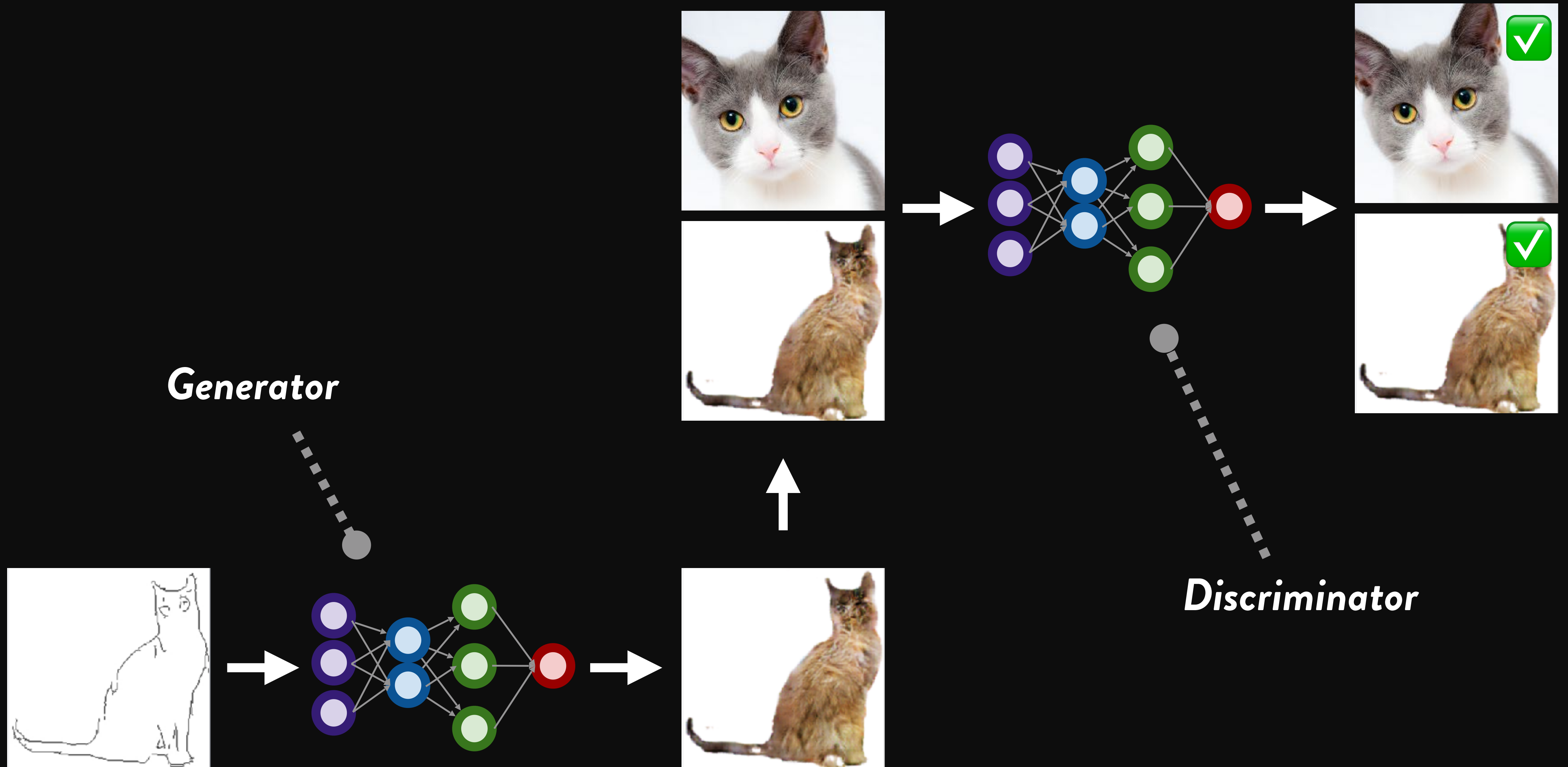


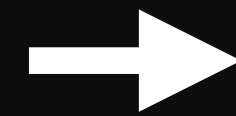
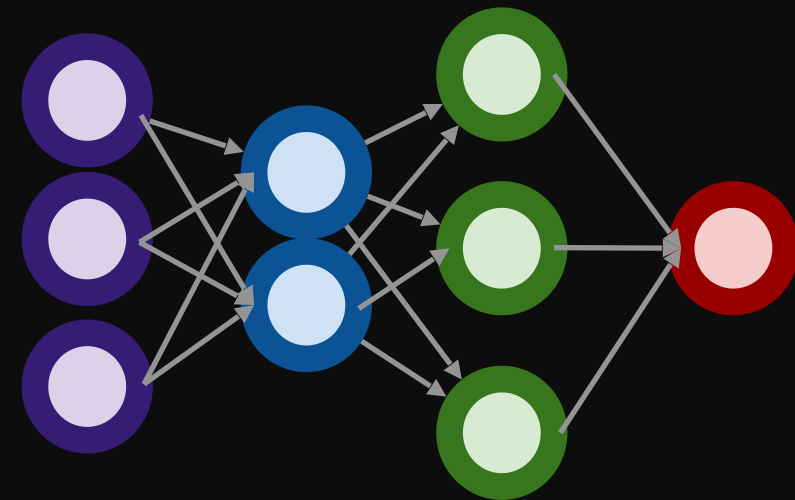
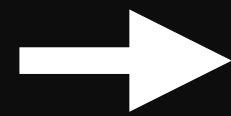
<https://zaidalyafeai.github.io/pix2pix/cats.html>

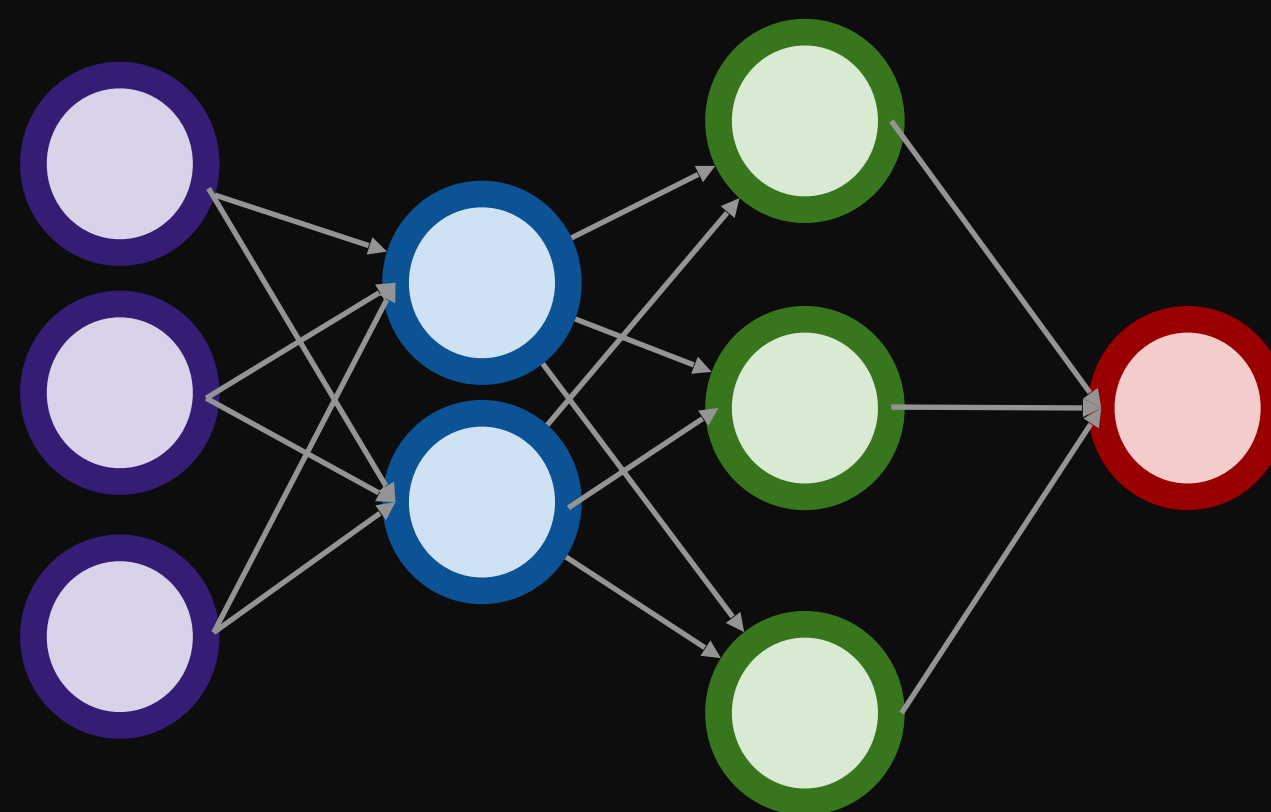
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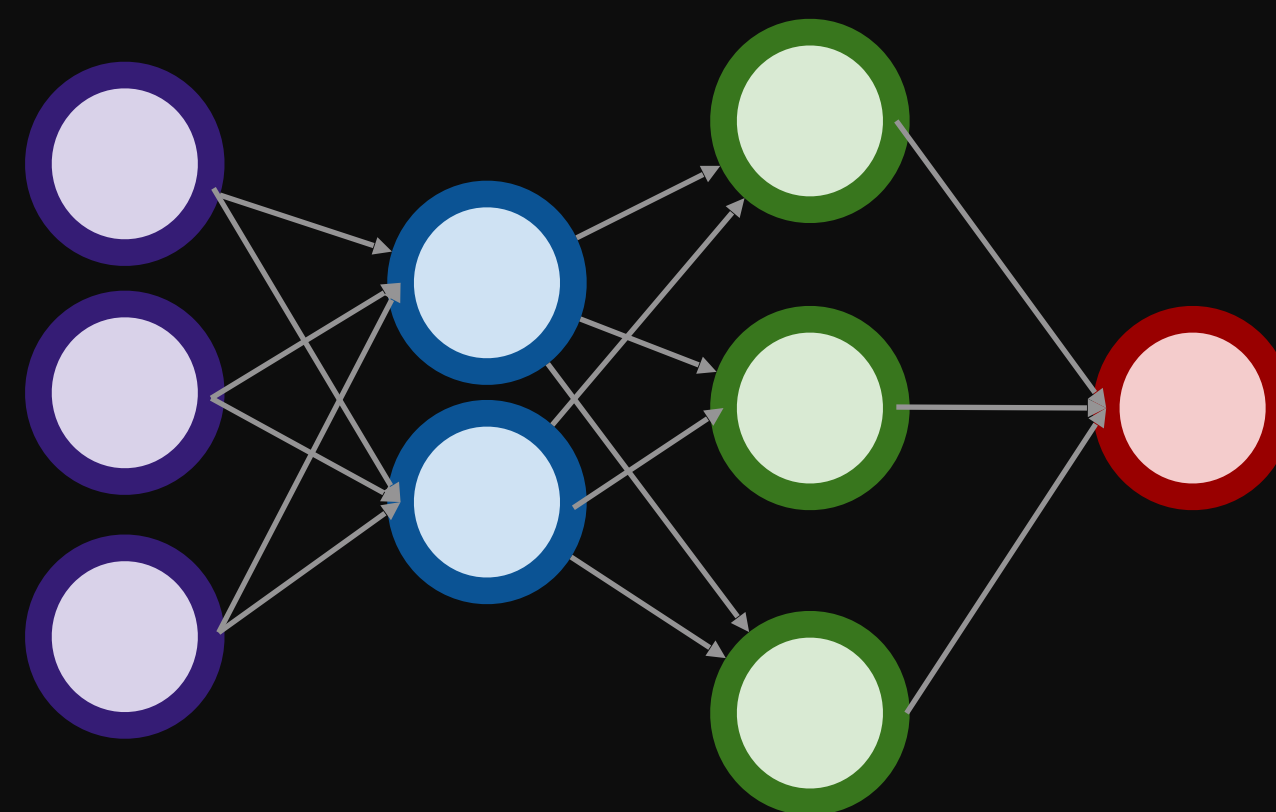
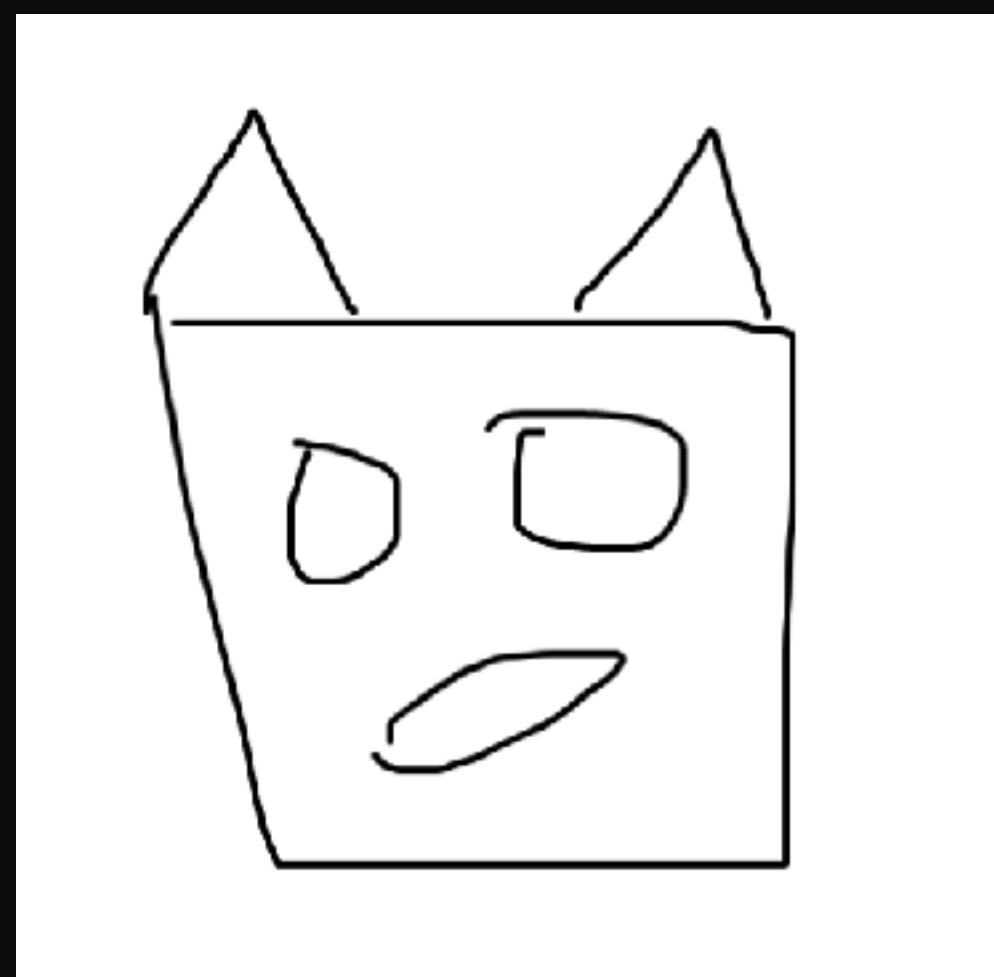












Edge-to-Face Results



<https://github.com/NVIDIA/vid2vid>

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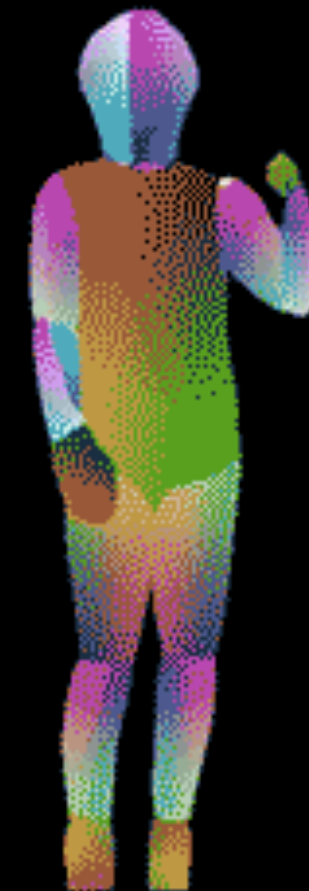
Multiple Outputs for Edge-to-Face



<https://github.com/NVIDIA/vid2vid>

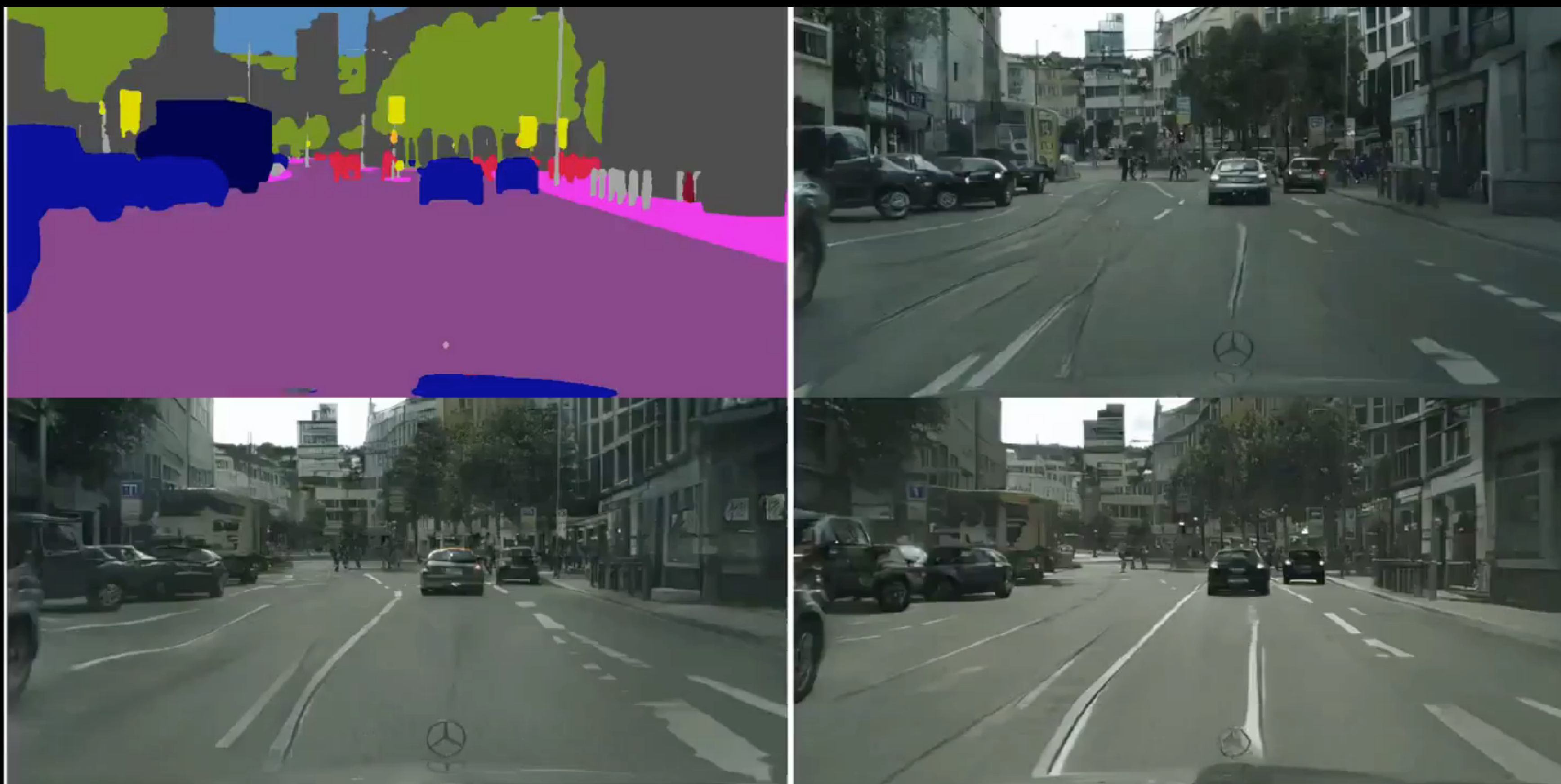
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Pose-to-Body Results



<https://github.com/NVIDIA/vid2vid>

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<https://github.com/NVIDIA/vid2vid>

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This flower has long thin yellow petals and a lot of yellow anthers in the center

Stage-I



Stage-II



This bird is white, black, and brown in color, with a brown beak

Stage-I



Stage-II



Summary

Summary

- GANs learn to generate new images
- They take a lot of compute to train
- But the generator model can be run in the browser



www.subscribepage.com/tfjs-book

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The Mojifier



aka.ms/mojifier

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