

Harvard

Yá'át'ééh 🖐️

CRESTLEX 3.0

CReating **E**ffective **ST**em
Learning **EX**periences

with Navajo Tech





Before we go!

Student Resources

to **learn more** about AI and **ML!**



A decorative graphic on the left side of the slide. It features a vertical red bar on the far left edge. To its right is a yellow grid with 4 columns and 8 rows. In the top-left corner of the grid, there is a 3x3 cluster of small grey dots. At the bottom-left corner, a blue arc is partially visible.

Learn programming!

A decorative graphic on the right side of the slide. It features a yellow grid with 4 columns and 8 rows. In the top-right corner, there is a large orange circle with a red line extending from its top and right edges. In the bottom-right corner, there is a 4x5 grid of small grey dots.

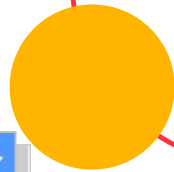
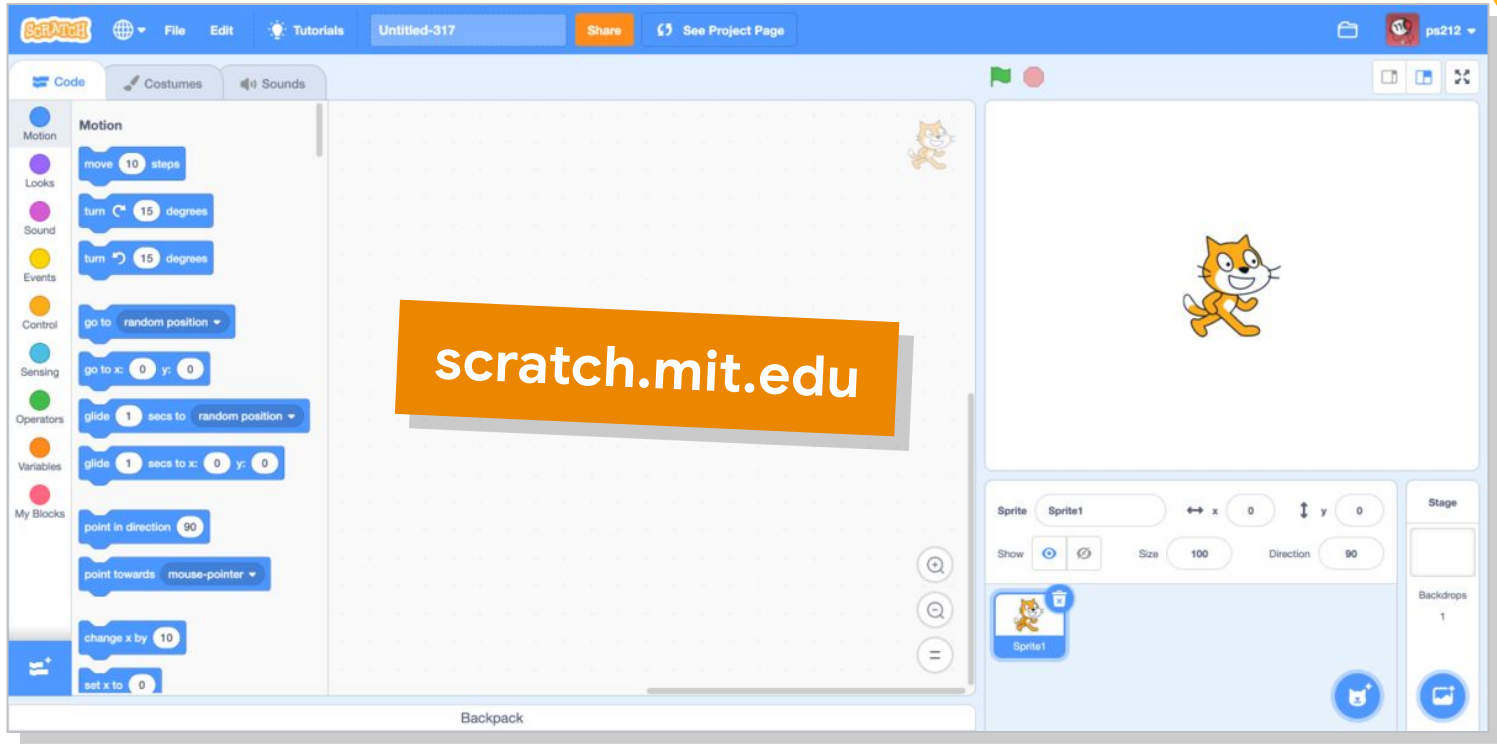
Learn programming!

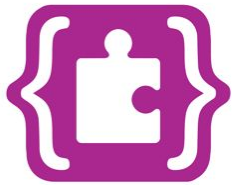
Scratch interface showing a project titled "Untitled-317". The interface includes a menu bar (File, Edit, Tutorials, Share, See Project Page), a toolbar (Code, Costumes, Sounds), and a sidebar with categories: Motion, Looks, Sound, Events, Control, Sensing, Operators, Variables, and My Blocks.

The main workspace displays a Scratch cat sprite and a large orange banner with the text "scratch.mit.edu".

The right panel shows the Sprite area with "Sprite1" selected, and the Stage area with "Backdrops 1".

The bottom of the interface features a "Backpack" label.





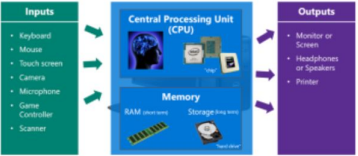





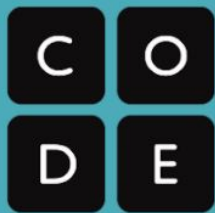
Microsoft MakeCode

Hands-on computing education

Example: Lesson 2 - What is Computer Science?

What Is a Computer	History of Computing	Hardware
<p>What is a Computer?</p> <p>A programmable device that stores, retrieves, and processes data</p> <p>Human Computers – performed numerical calculations using mechanical calculators (abacus, slide rule)</p> <p>Modern computer today –</p> <ul style="list-style-type: none">• Runs on electricity• Hardware• Software  	<p>History of Computers</p> <ul style="list-style-type: none">• 1832 – Charles Babbage invented the first mechanical computer, "Difference Engine"• 1843 – Ada Lovelace wrote the first computer program for Babbage's "Analytical Engine"• 1945 – first digital computer, "ENIAC" invented at the University of Pennsylvania weighed 50 tons!  	<p>What is computer "Hardware"?</p>  

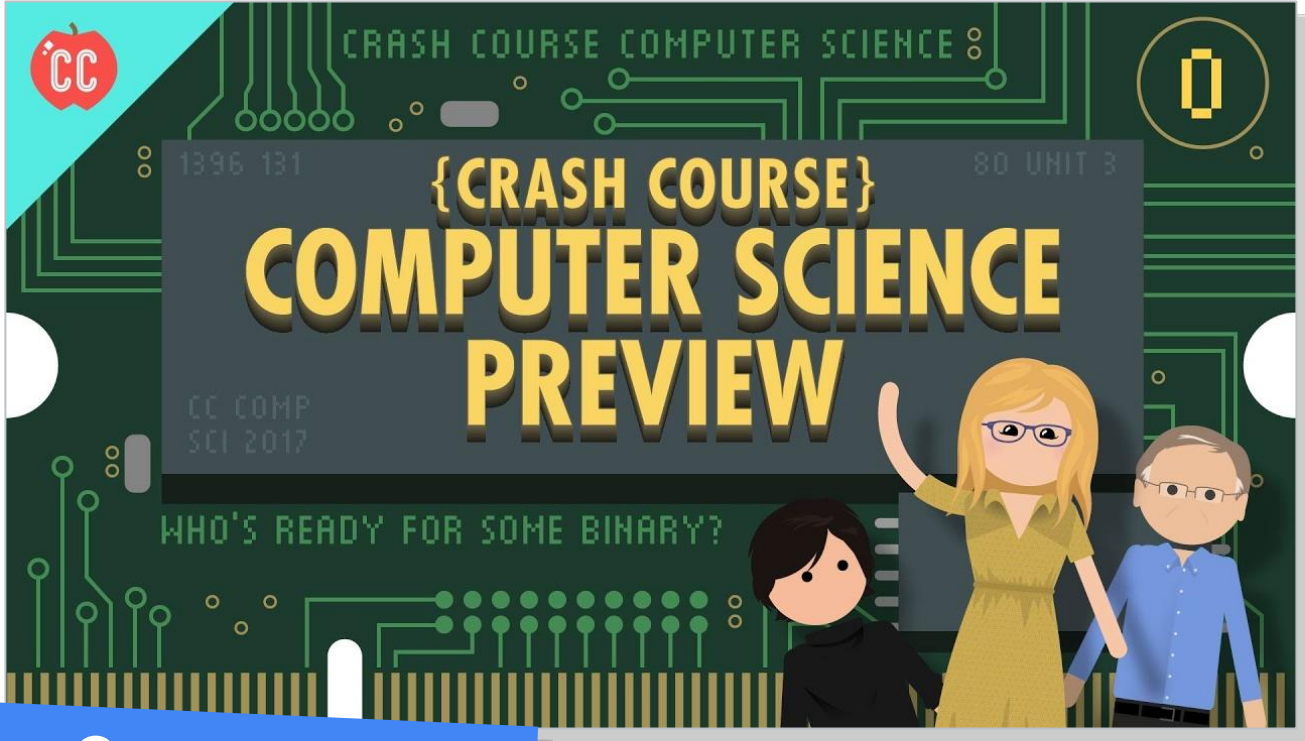




Curriculum Guide
2020-2021

Computer Science Principles

curriculum.code.org



CrashCourse



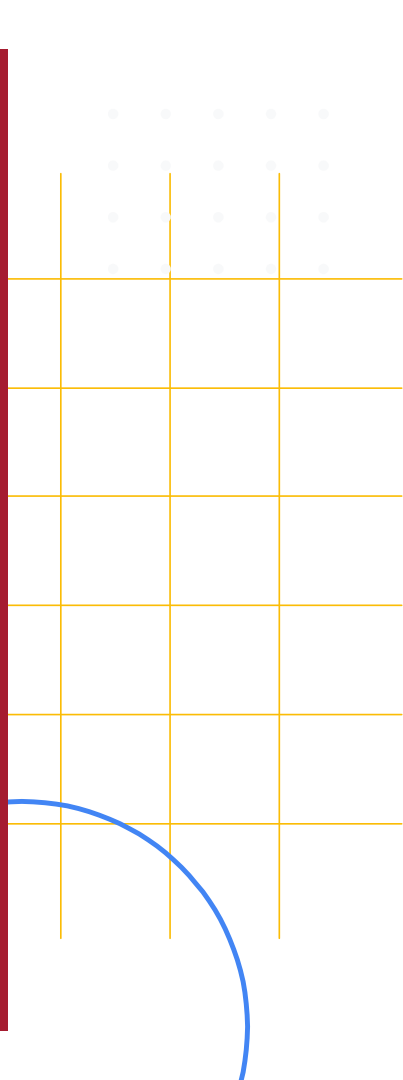


CS50's Introduction to Computer Science

HarvardX

Course

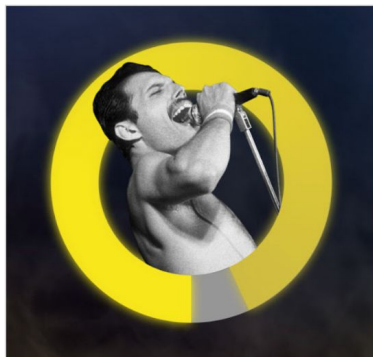
on edX.org



Practice with more
machine learning!



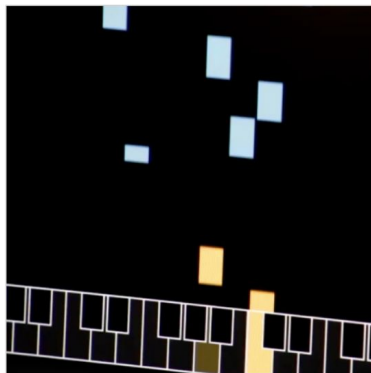
AI + MUSIC



FREDDIEMETER

by Google Research, Google Creative Lab,
YouTube Music

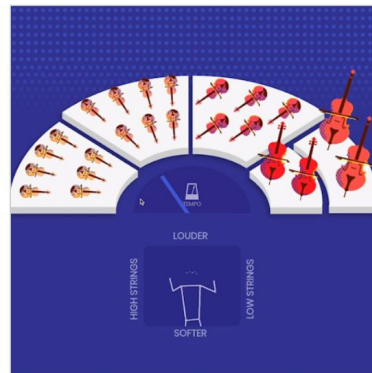
An AI-powered singing challenge that rates
how closely your singing matches the voice



AI DUET

by Yotam Mann

A piano that responds to you.



SEMI-CONDUCTOR

by Google Creative Lab

Conduct your own orchestra in the browser by
moving your arms

experiments.withgoogle.com



Teachable Machine

Train a computer to recognize your own images, sounds, & poses.

A fast, easy way to create machine learning models for your sites, apps, and more – no expertise or coding required.

Get Started



teachablemachine.withgoogle.com

Classification result

Summary

Name:

Expected outcome:

CATEGORY	COUNT
helloworld	0
noise	0
unknown	1
uncertain	0

Detailed result Show only unknowns

TIMESTAMP	HELLOWORLD	NOISE	UNKNOWN
0	0.36	0.01	0.62

RAW DATA

helloworld.jan5.wav.1ncrr7qm.s17



Raw features

37, 34, 42, 36, 14, 1, -3, -9, -7, -10, -20, -29, -26, -21, -23, -

MFCC (1,649 samples)



Introduction to TensorFlow for Artificial Intelligence, Machine Learning, and Deep Learning

★★★★☆ 4.7 15,457 ratings | 👍 96%



Laurence Moroney

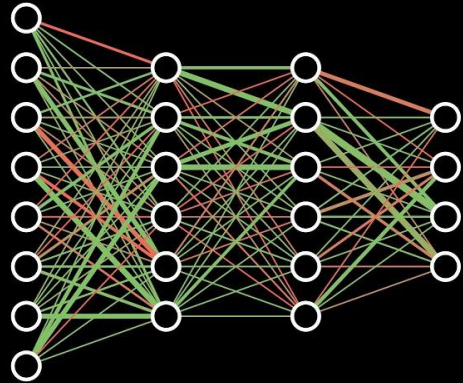
Enroll for Free

Starts Jun 24

Financial aid available

coursera

Neural Networks



From the
ground up

3Blue1Brown



The Future of ML is Tiny and Bright



Professional Certificate in
Tiny Machine Learning (TinyML)

I'm interested ✓

Courses in this program



HarvardX's Tiny Machine Learning (TinyML) Professional Certificate



Fundamentals of TinyML



Applications of TinyML



Deploying TinyML

tinymlx.org



TINY MACHINE
LEARNING KIT

In partnership with:



TensorFlow

Explore projects

Trending ▾

All difficulties ▾

Featured ▾

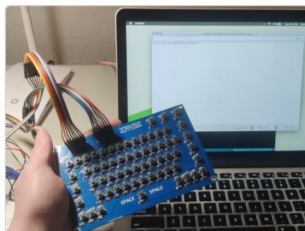
Any type ▾



Getting Started with the Raspberry Pi Pico

Arduino "having11" Guy

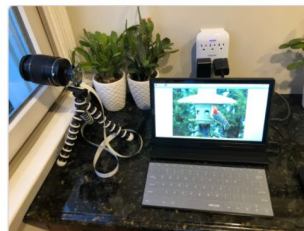
👍 15 👁 2.5K



64-Key Prototyping Keyboard Matrix for Arduino

Cameron Coward

👍 19 👁 6.8K



ML-Based Bird and Squirrel Detector (Raspberry Pi and AWS)

Mike Sadowski

👍 31 👁 5.3K



Self-Playing Melodica 🎹 🤖

touchmysound

👍 30 👁 3.9K



hackster.io



build something



hackster.io

Google search

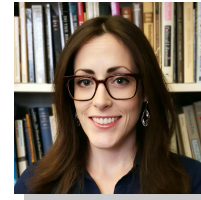
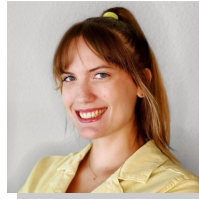
Stack Overflow

Our website!

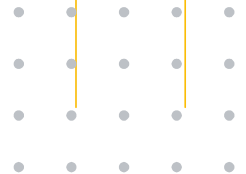
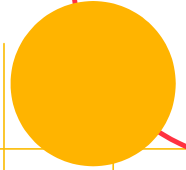
tinymlx.org/CRESTLEX3/

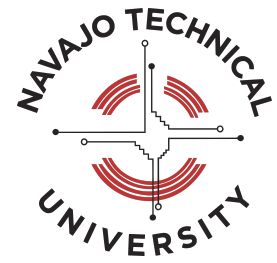
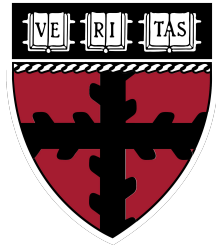
home base for **all information!**

Our team!



with help from **many more**







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keep in touch with us!
look out for emails re: survey & stipend!