

# JUNIOR INSTRUCTORS



**Betsy**

Princeton University  
Computer Science Major  
7 Years of Computer Science Experience



**Vishnu**

Yale University  
Computer Science & English Major  
5 Years of Computer Science Experience



**Hao**

Cornell University  
Computer Science Major  
5+ Years of Computer Science Experience



**Kristen**

Cornell University  
Mechanical Engineer Major  
5+ Years of Computer Science Experience



**Sky**

USACO Gold Division & Researching a potential HIV vaccine with the Ragon Institute of MGH, MIT, & Harvard  
4+ Years of Computer Science Experience

## WORKSHOP TIME & DURATION:

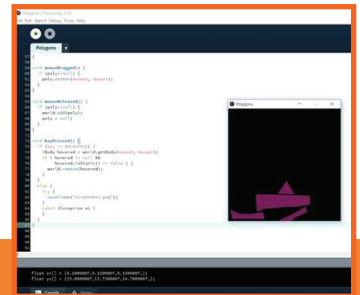
Flexible Scheduling visit:  
[www.ktbyte.com/classes/ws-workshop-series](http://www.ktbyte.com/classes/ws-workshop-series)

## INCLUDED IN WORKSHOPS:

- Student Progress Reports
- Student In-Class Projects

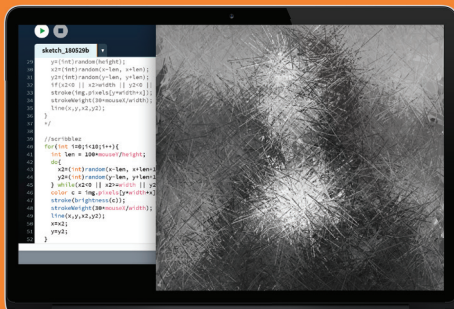
## CODING LANGUAGE:

Java



# WORKSHOP TOPICS

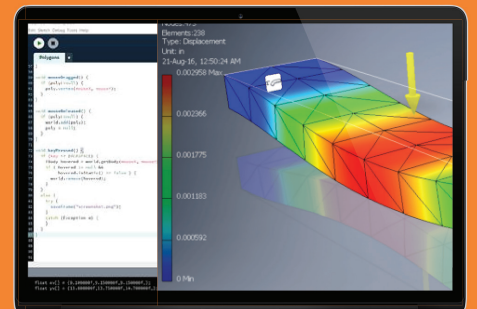
**A Visual Introduction to Java**  
Create Interactive Image Effects!



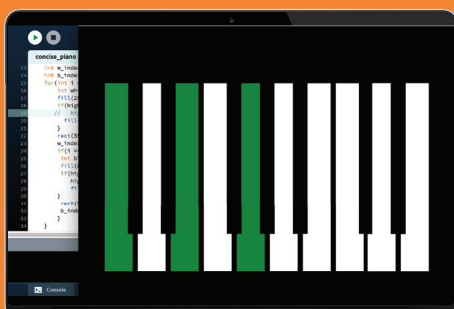
**Introduction to Web Coding**  
Build Your Own Website!



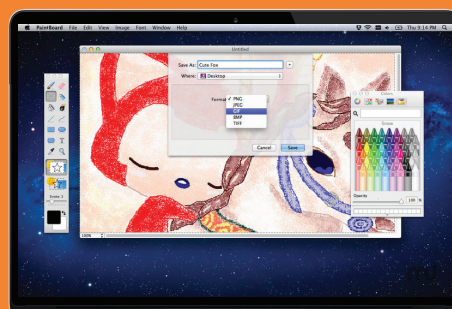
**Bridge Simulations in Java:**  
Designing Simple Structures!



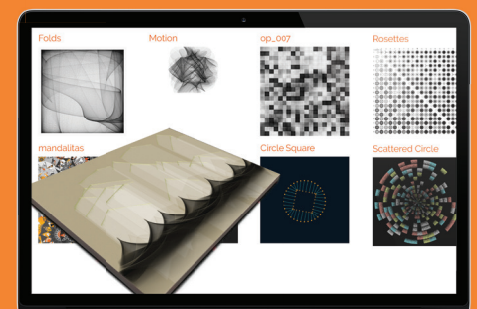
**A Audible Introduction to Java**  
Create Virtual Electronic Instruments!



**Painting in Java**  
Make Your Own Magic Paintboard!

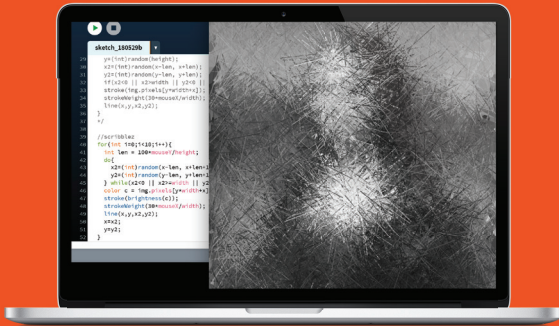


**Computational Design**  
Designing and Creating Art with Code!



# A Visual Introduction to Java

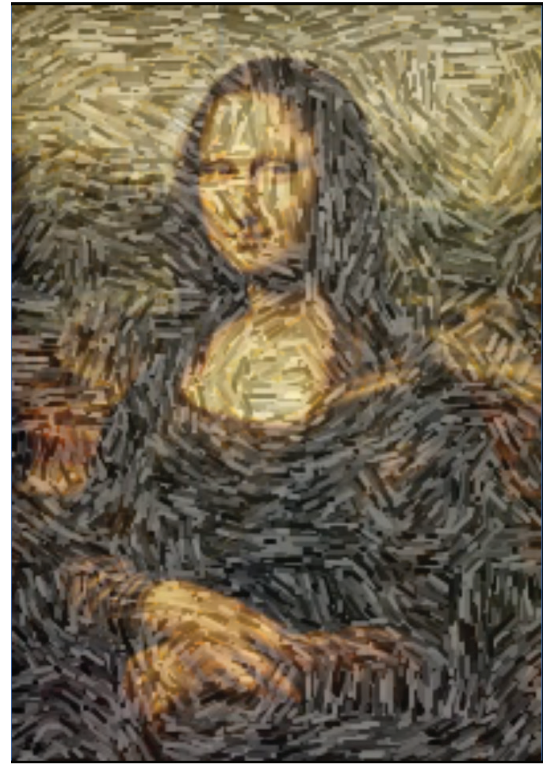
Create Interactive Image Effects!



Isn't it cool how you can add filters and effects on your photos with certain software, like Instagram, Photoshop, and Snapchat?

In this workshop, we will cover concepts including coordinates, variable types, randomness, loops, cursor input, and RGB colors so you can code your own!

## Student Project Sample:



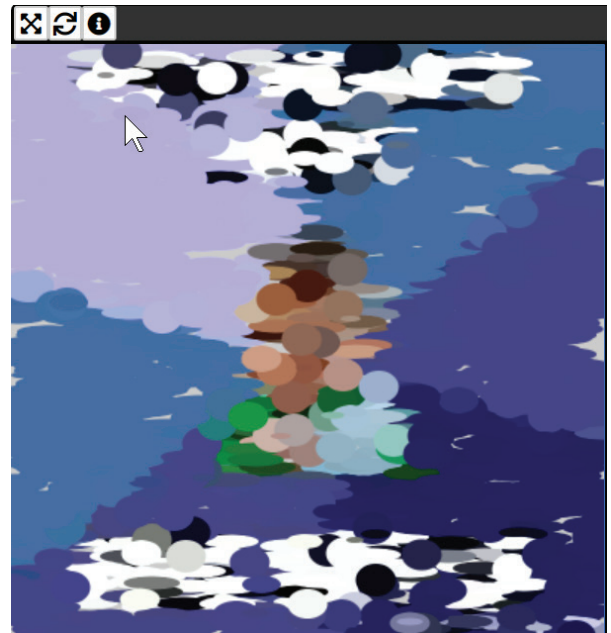
VanGoghify:

<https://bit.ly/2SD3gWn>



Starry Night Fade Cursor:

<https://bit.ly/2BAHyx>



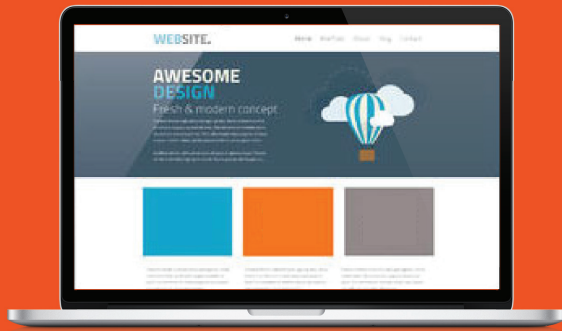
Success Kid Ellipsify:

<https://bit.ly/2BMveof>



# Introduction to Web Coding

Build Your Own Website!

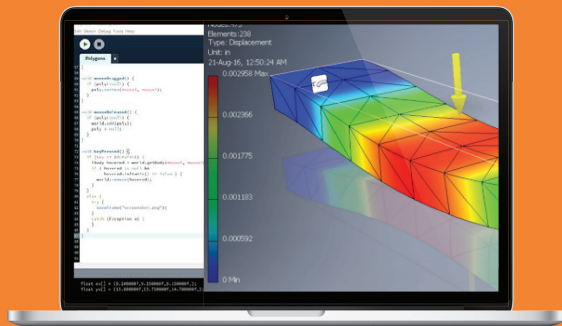


Have you ever wondered how websites are made? Or wanted to build your own?

In this workshop, we will show you how to build a website using HTML, CSS, and JavaScript!

# Bridge Simulations in Java

Designing Simple Structures!



Computer science helps engineers by allowing them to simulate real-life scenarios on their designs before potentially losing millions of dollars (or even lives) due to a design flaw.

In this class, students will learn how to design simple structures in Processing using Java and test these designs in the face of a few different factors.

# Student Project Sample:

QBBuzz

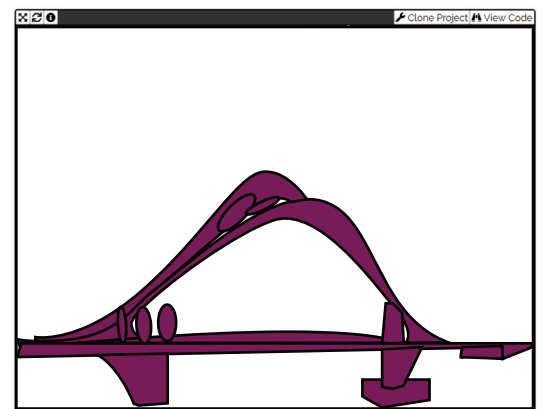
Next Question

ANSWER: Alfred Emanuel Smith Jr

One gubernatorial campaign of this politician saw a future first lady support him by riding on top of a giant motorized teapot while yelling "corruption" at onlookers. This member of the American Liberty League was advised by Belle Moskowitz. He was the vice chairman of the committee that investigated the Triangle Shirtwaist fire. His anti-prohibition beliefs contrasted against William McAdoo's ("I dry stance at the 1924 convention. in his most notable election his running mate was Joseph Robinson. This "happy warrior" was Governor of New York for most of the 1920s. He's not Kennedy, but he was the first Catholic to receive a presidential nomination by a major party. For 10 points, name this losing Democratic candidate for President in 1928.

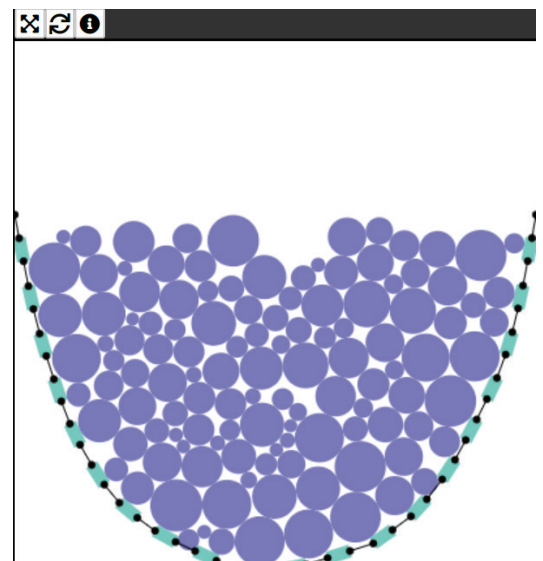
Tournament: HSAFQ National History Bowl 2011 (HS)

Buzz



Try out this physics simulation program

<https://bit.ly/2EaSFJm>

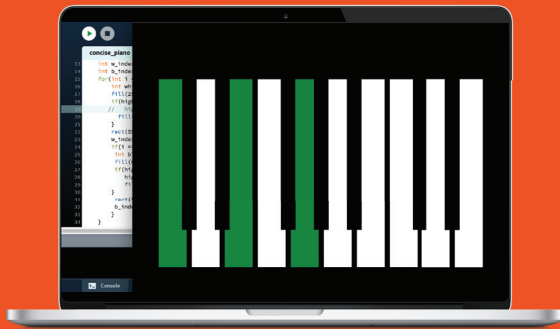


Try out this physics simulation program

<https://bit.ly/2IhxnOe>

# An Audible Introduction to Java

Create Virtual Electronic Instruments

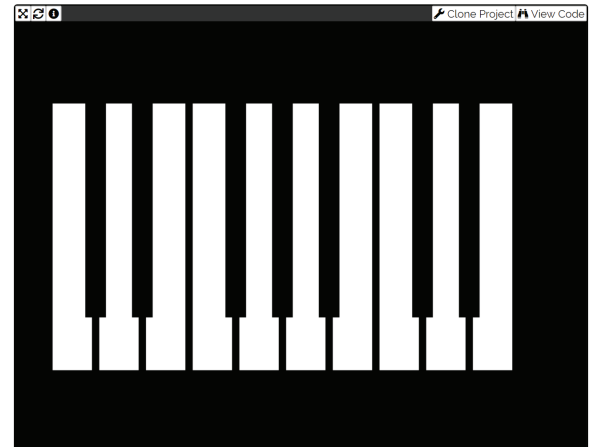


Artists in every genre from classical music to rap make music with software these days.

Digital Audio Workstations—or DAWs for short, is essentially software for making music, and we are going to try to make some simplified versions of DAW components. In this workshop, students learn the keys of computer science through the creation of code-based electronic instruments including a virtual piano and a drum sequencer.

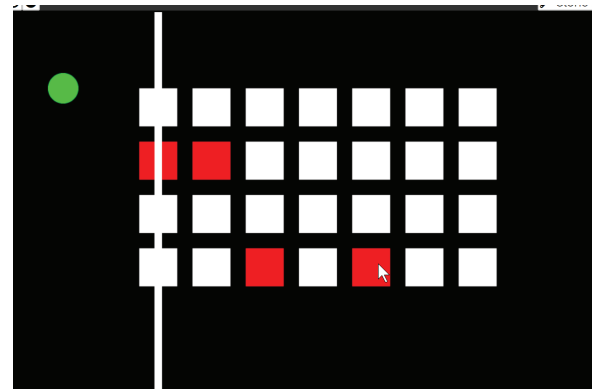
Many believe that programming is used for brute-forcing a bunch of nasty calculations, but this is an example of the elegance and practical purpose it has. Programming is one of the few things that allows you to explore student's pre-existing passions in a new way. It can provide students a way to explore their passion for music and problem solving!

## Student Project Sample:



Play this virtual piano here:

<https://bit.ly/2tlbEdX>



Play this virtual drum here:

<https://bit.ly/2V1iIOd>

## Painting in Java

Make Your Own Magic Paintboard

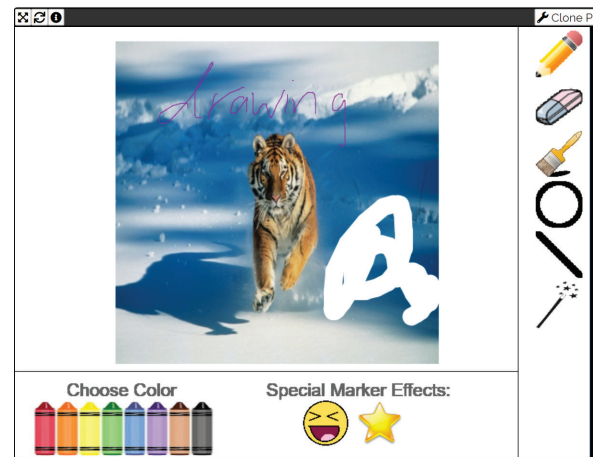


Learn to code an app that lets you quickly crop a photo, add text to an image, or just have fun doodling! Add a personal touch to pictures or videos with a variety of fun magic marker effects. Your creativity is the limit!

You may have heard of popular graphics editing software such as Photoshop and Microsoft Paint which have millions of users. These type of programs are known as raster graphics editing software and have been around for over twenty years. The original Microsoft Paint was released in 1985 and Adobe Photoshop followed soon after in 1988. With continuous updates adding new features and functionality every year, users have the ability to create more and more art and edit their photos in creative and revolutionary ways. Raster graphics editing software begun with the basic features of sketching and painting and cropping images and has evolved to contain features such as automatic color balancing and image filters.

There are an abundance of graphics editing software each with slightly different features and interfaces, however, the majority contain the same basic features such as drawing, erasing, and painting using different colors. We will be creating a simple version of a graphics editing software that is quite similar to the original Paint program with the basic features mentioned previously.

## Student Project Sample:



Try out this paint tool!

<https://bit.ly/2EaHBvH>



Try out this paint tool!

<https://bit.ly/2UYQD4p>

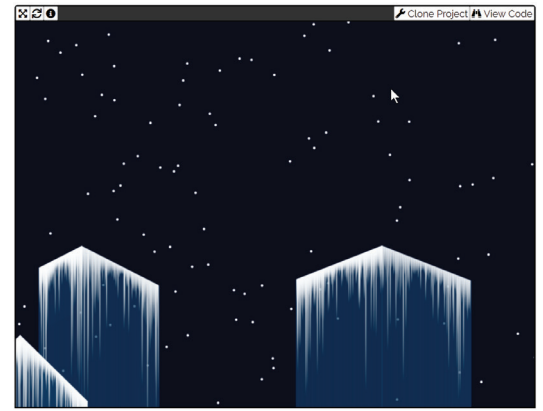
# Computational Design

Designing and Creating Art with Code!

This live, online class is a hands-on introduction to computational design and creativity using Java, with a goal of creating a mesmerizing, abstract cityscape design using the concept of deterministic and pseudo-randomness. This fun workshop allows for the integration of the digital with the physical world in an unexpected way! Students will get to print their artwork onto a canvas and we will be shipping it to you!

At the end of the workshop, we will host a gallery viewing event to see everyone's projects (*In-person and online*). Class times are still TBD, so please let us know your interest and availability!

## Student Project Sample:

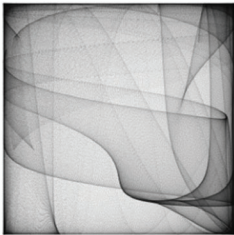


Visit this link:

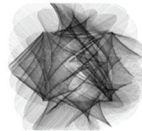
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## Student Project Sample:

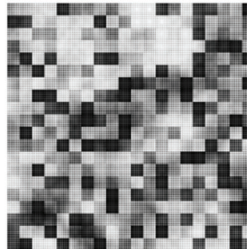
Folds



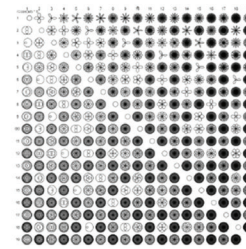
Motion



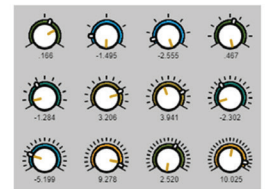
op\_007



Rosettes



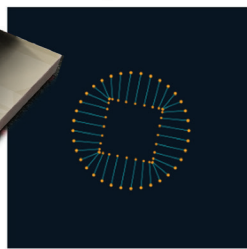
Super Dial 2



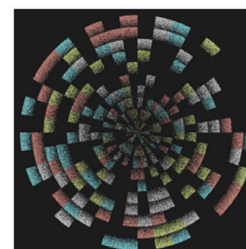
mandalitas



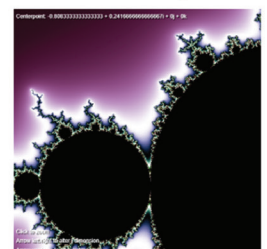
Circle Square



Scattered Circle



Mandelbrot Explorer



Learn about this art piece:

<https://bit.ly/2TTTw6M>