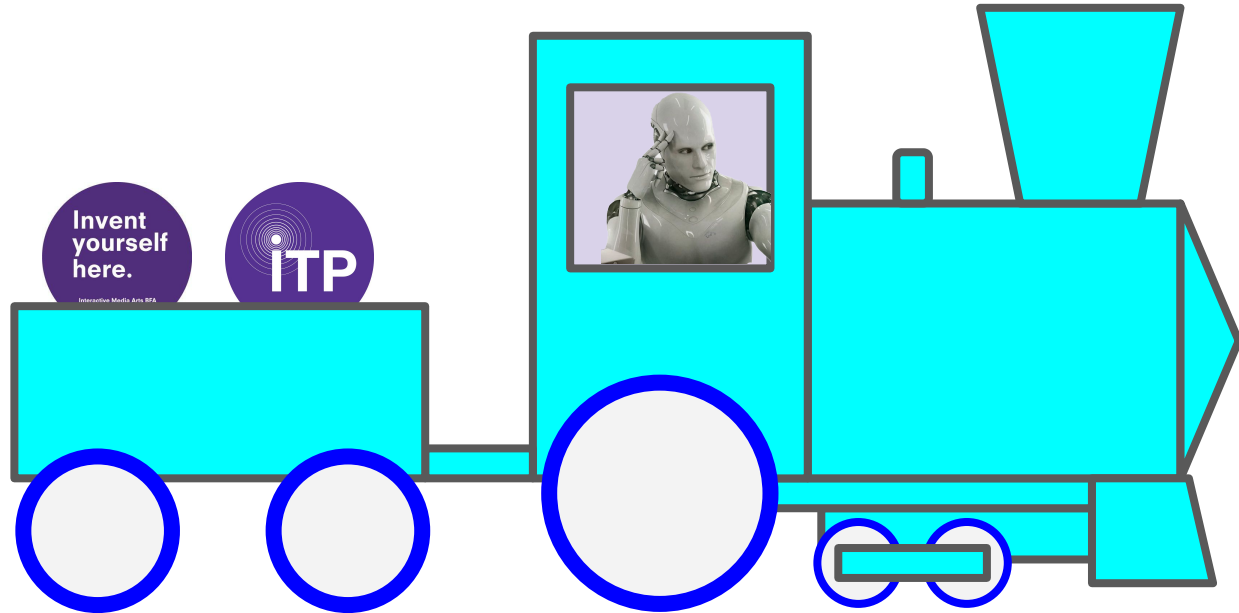


I ' M A CHATBOT



Inspiration

When I came back to NYC this August, I visited our ITP IMA floor before the semester started to see the new students' welcome orientation. I saw approx 40~50 new students there, most of them were freshman but some were transfer students. And that day I met three freshmen students from Korea. And then one of them asked me, "What exactly do we learn in our department? Is it fun? What do you think?" When I heard that, I realized once again how difficult it is to explain exactly what we learn in our department. That's when the thought struck me.. I could make my own chatbot or something that could help our new students to learn about our department.



Project Summary

I'M A Chatbot is a chatbot designed for new IMA students who just joined IMA. Not just the new student who gave me the inspiration, even myself also had hardships with course registration and using facilities when I first joined IMA. Not just because I was a new student, it was 2020, the start of COVID. So the year I joined IMA in person was 2022 (I took a gap year for Fall 2021 semester), and everything felt new to me. This chatbot provides all the information that our department's new students are most curious about. For example, it provides information such as which courses are required to take in the first semester, what facilities our department has, what kind of work can be done at those facilities, and a list of faculty and staff. But before they access the chatbot, all people need to verify themselves as part of the ITP IMA Community through their ITP IMA Community member document of proof. The document of proof will be given to the users during my presentation, users will hold the document in front of my computer camera until the link to the chatbot pops up. I'll call this part as "facial recognition" to explain it easily. For this "facial recognition", I used Google's Teachable Machine which we learned & used at the beginning of semester. Of course this is not a real "facial recognition", I added facemesh to look like a facial recognition system when a machine scans someone's face. Bonus: I'M A Chatbot also contains some information about good restaurants near ITP IMA building and NYC landmarks!

Process: Teachable Machine

1. Making "Facial Recognition" system with Teachable Machine & p5js.

- a. To train my teachable machine model, I had to find people with different look based on race, gender, age, and styles.
 - i. I was able to get help from my friends, professors, and some faculty members.
 - ii. Entered two outputs into the teachable machine. One is "Welcome back ITP IMA Member!" and the other is "Error!"
- b. I gave them a piece of paper with our department logo and ITP IMA Community Member written on it, and then trained the teachable machine.
- c. To make the "Welcome back ITP IMA Member" output pop up, all people including me held the paper and trained the model, to get the "Error" output, we held nothing and stared at the camera.



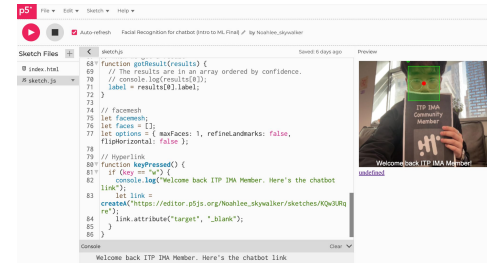
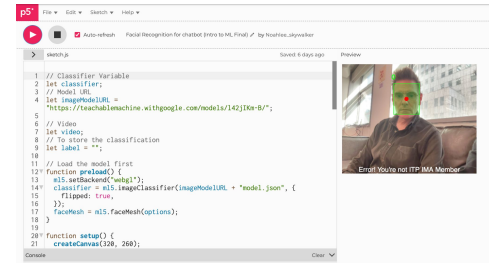
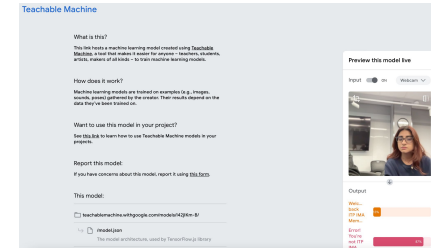
Process: Exporting teachable machine code to p5js + Adding hyperlink and facemesh

1. After finishing Teachable Machine sample, I exported the code to p5js. But it didn't work properly. Later noticed it was a new glitch with WebGL and WebGL, so I had to change the part

```
// Load the model first
function preload() {
  m15.setBackend("webgl");
  classifier = m15.imageClassifier(imageModelURL +
"model.json", {
    flipped: true,
  });
  faceMesh = m15.faceMesh(options);
}
```

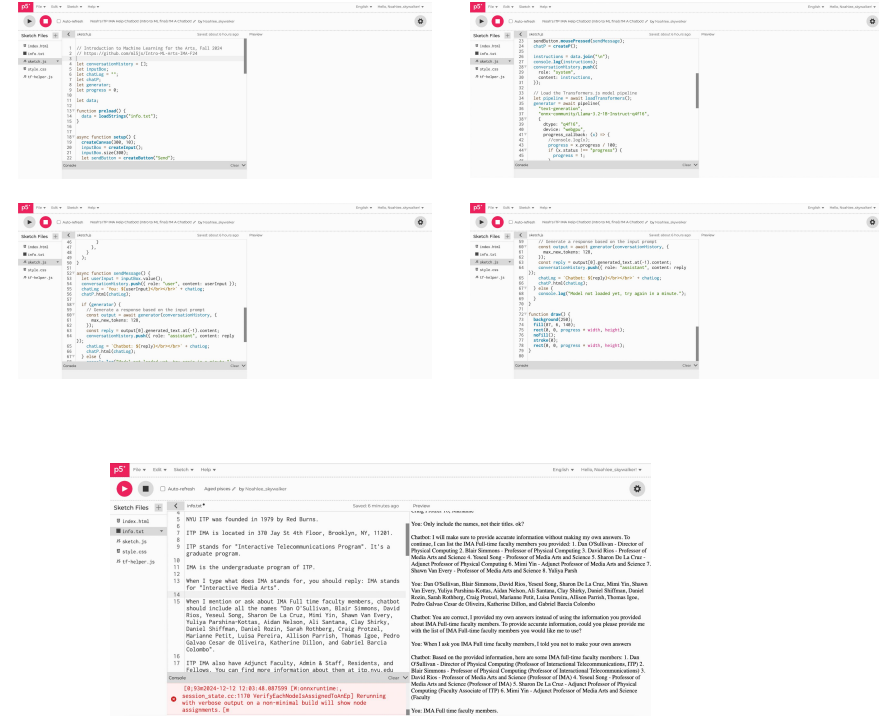
2. Previously, it worked with using "webGPU", but due to the glitch, I had to change the webGPU to WebGL. Thanks to our professor who found this glitch.
3. One of the most interesting part, hyperlink, I used keyPressed function to get the chatbot link.

```
// Hyperlink
function keyPressed() {
  if (key == "w") {
    console.log("Welcome back ITP IMA Member. Here's
the chatbot link");
    let link
createA("https://editor.p5js.org/Noahlee_skywalker/sketches/KQw3UR
gre");
    link.attribute("target", "_blank");
  }
}
```



Process: Making & Training the Chatbot

- I used the LLM chatbot (transformers.js) model we used during our class.
 - The original model was not trained properly, after asking some basic questions, I noticed most of chatbot's responses were wrong.
 - ex) Who is the player character of game *Resident Evil Village*?
 - Correct answer: Ethan Winters
 - Chatbot answer: Emilia
 - So I had to change some parts of the code. First, I created info.txt file to the sketch.
 - After creating info.txt file, I connected it with sketch.js file. The changed code was
 - ```
function preload(){
 data = loadStrings("info.txt");
}
```
- The most important part, training the chatbot, I had to write down all the informations about ITP IMA to info.txt file.
  - I received some feedback from my classmates during the playtesting and most of the feedbacks were related with training chatbot for everyone in IMA to use easily.
  - When I was training chatbot, I trained it in the following way: "When I ask this question, the answer should come out exactly like this." But the problem was that the way I wrote those questions was based on my own standards, and when my classmates asked the same question with a different feel, a strange answer came out.
    - ex)When I ask chatbot "Can you list full time faculty members in ITP IMA?", which was a question based on my standards, it gave the right answer but when my classmate wrote "IMA Professors", it didn't even gave the related answer.
- I've encountered multiple problems while training the chatbot. The biggest problem was even I train the model with info.txt file and training through chatting, this chatbot model seem to learn it properly. For example, when it gave me the wrong answer, I typed "Please do not make your own answers", chatbot replied "You are correct, I provided my own answers instead of using the information you provided about IMA Full-time faculty members".
- So it took awhile for me to get the correct answers by training the model. But sometimes still, it gives me an weird answer.



## Results

### Chatbot sketch link

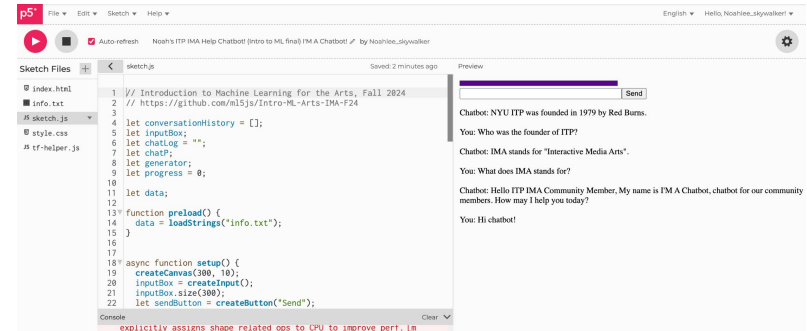
- [https://editor.p5js.org/Noah\\_lee\\_skywalker/sketches/KQw3URqre](https://editor.p5js.org/Noah_lee_skywalker/sketches/KQw3URqre)

### Facial Recognition sketch link

- [https://editor.p5js.org/Noah\\_lee\\_skywalker/sketches/5S\\_wHJ4QU](https://editor.p5js.org/Noah_lee_skywalker/sketches/5S_wHJ4QU)

### Teachable Machine

- <https://teachablemachine.witgoogle.com/models/l42jIKm-B/>



```
1 // Introduction to Machine Learning for the Arts, Fall 2024
2 // https://github.com/ml5js/Intro-ML-Arts-IMA-F24
3
4 let conversationHistory = [];
5 let inputBox;
6 let chatLog = "";
7 let chatP;
8 let generator;
9 let progress = 0;
10
11 let data;
12
13 function preload() {
14 data = loadStrings("info.txt");
15 }
16
17
18 async function setup() {
19 createCanvas(300, 10);
20 inputBox = createInput("");
21 inputBox.size(300);
22 let sendButton = createButton("Send");
```

Chatbot: NYU ITP was founded in 1979 by Red Burns.  
You: Who was the founder of ITP?  
Chatbot: IMA stands for "Interactive Media Arts".  
You: What does IMA stand for?  
Chatbot: Hello ITP IMA Community Member, My name is IMA A Chatbot, chatbot for our community members. How may I help you today?  
You: Hi chatbot!

# Credits

Project by Noah Lee

Tools used

- p5js
- Google's Teachable Machine
- LTX Studio

Special thanks to..

- Jiyeon Lee
- Samay Dhawan
- Heesung Jung
- Hannah Zhao
- Jenna Han
- Clarissa Pace
- Violet Hyun
- Joshua Thwaites
- Jaden Mansfield
- Jessica Dai
- Andy Cabindol
- Delaney Wong
- Khushi Hora
- Our faculty members: Shawn Van Every, Ellen Nickles, Rob Ryan, and Derek Castillo
- Professor Shiffman and Alan



Thank You!

