

# Final essay

CART 263

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**With the advantage of hindsight, briefly characterize the state of your programming knowledge at the start of this course.**

To best describe my experience in programming, we have to go back a couple years. I was first exposed to programming on my 13th birthday in 2011, when my parents got me an EV3. That thing was awesome. Without actually coding, I made a cup and ball game using the given motors. It was really awesome and from then on I knew that I had a future in this.

My next large leap in coding was getting a raspberry pi in christmas of 2016. I got to play around with scratch, which led to me making a cool neat maze game. Using codeblocks was really fun.

It wasn't until 2019, when I started my semester of comp eng in CEGEP that I started learning the ins and outs of C++, and arduino IDE. On my own time I had toyed around with VScode, and JS, but never really got anywhere as I still struggle with the self discipline it takes to thoroughly learn coding alone. That changed when last semester I got to learn a lot about vscode, and javascript.

For some reason I always thought coding was generally similar in terms of use across all platforms, but that couldn't be further from the truth. Code in C++ isn't used the same as in JS, or python, and so on. To me it was really new, when using the go live function to see your website update in real time. But I learned a lot of what I am using now mostly from last semester. Logic wise, I already had that figured out from my DEC in CEGEP, but learning the quirks and differences in application and use was new.

Using P5 i think was a really great intro to javascript, it made me realize that literally any code with an if else statement is pretty much identical. So it was really fun to apply what I already knew in arduino into this new aspect of website stuff. Especially how p5js treats everything in the screen like a frame, really helped me grasp logic and what I wanted to happen next. With that being said, I really need to work on coding without p5js, as I know there are many other ways to code.

But starting in this semester, it was familiar, but there was still so much to learn.

**discuss aspects of your new programming experiences in the course that you find exciting in connection with your personal approach to creativity. This can include elements that you are comfortable with, but also things you're challenged by but want to work on incorporating into your creative coding practice.**

So far, I find machine learning absolutely fascinating.

- The ups

The coding train is the absolute GOAT. He is so easy to follow, and really taught me a lot of the machine learning I know now. It's also a lot easier than I thought it was! All my life I thought that ML was this spooky witch crafty thing, but really it's just a bunch of math crammed together. I feel that following step by step with codingtrain made me feel confident in using an MLA (machine learning algorithm). I see a lot of different applications I can use MLAs for.

- The downs

I still have a lot to learn. I might know the entry level stuff but there are a lot of cool things that can be done which I know I haven't even scratched the surface of. For example, I want to learn more about ML regression, where the MLA can give a variable response instead of an absolute one. For example, this would be really cool to implement in a music bot which takes the person's pose through the camera and depending on how confident it feels between 2 poses, it can play variable notes between notes C and D.

Voices is a really cool library as well.. But what was funny is that i learned that linux does not come preinstalled with voices as much as windows does! It only comes with one default basic TTS, and firefox also does not contain voices either! After a bit of troubleshooting, I found that downloading chrome installs the TTS' that google has. It would be awesome if either linux or firefox did something about the lack of voices.... Maybe I might even do a pull request for that!

**Describe one or more big ideas you're interested in exploring in the future that will be supported by your increasing knowledge of programming.**

Now having learned the basics of ML, and voices, as well as knowing p5js and the other libraries from last semester, there are a lot of things i can do! I feel attracted to the ML5.js library because it is really new to me, and I have never in my life ever worked with anything remotely similar. And the fact that it runs all locally is absolutely insane. Obviously, it isn't to the same level of power as mixtral, or LLama, but it is really cool how simple it works.

Having said this, I would really love to make some ML prediction algorithms to play with the user. I find the pose recognition really interesting, as well as the regressive prediction I mentioned before. If i were to make another ML project, it would probably use both poseML and ml5 in conjunction to make something like a theremin. To confess, I have never played with one but I understand the concept. I would probably just make the distance from one hand relative to the other influence the note pitch, while the other hand could tilt, turn, to make a drum beat. Maybe different gestures can translate to different instruments.

**The key is to demonstrate your ability to make connections between the very specific, technical knowledge you're picking up about JavaScript, the DOM, p5.js and other libraries with your understanding of creative work in computation arts more generally. What can you do now that you couldn't before, and where will you go next?**

To sum it up, I've learned a lot about javascript, and p5js. Code wise it is brand new, but it is nice to use. Using 'let' to define a variable is really funny to me especially after so many years of using 'int', and such. Now that I understand the basics of JS, p5.js, as well as ML5.js, there are a lot of really cool ideas and projects that are within my grasp. Like I mentioned above, I was thinking of making a theremin using the poseML library in conjunction with ML regression prediction. I definitely think this is not the last time I will be using JS or p5js. I can't wait to see what I come up with next!