



all of me

# THOMAS DONGZE LI

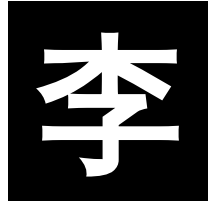
a tour of my work

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Nº0

# Introduction

Hey! I'm Thomas Li. I'm a software and hardware engineer, full-stack web & app developer, artist, graphic designer, photographer, music producer, and thing-doer. While those might seem like a lot of very random fields, I'm hoping this short document can help clear some things up about what exactly I do- and why I do them.





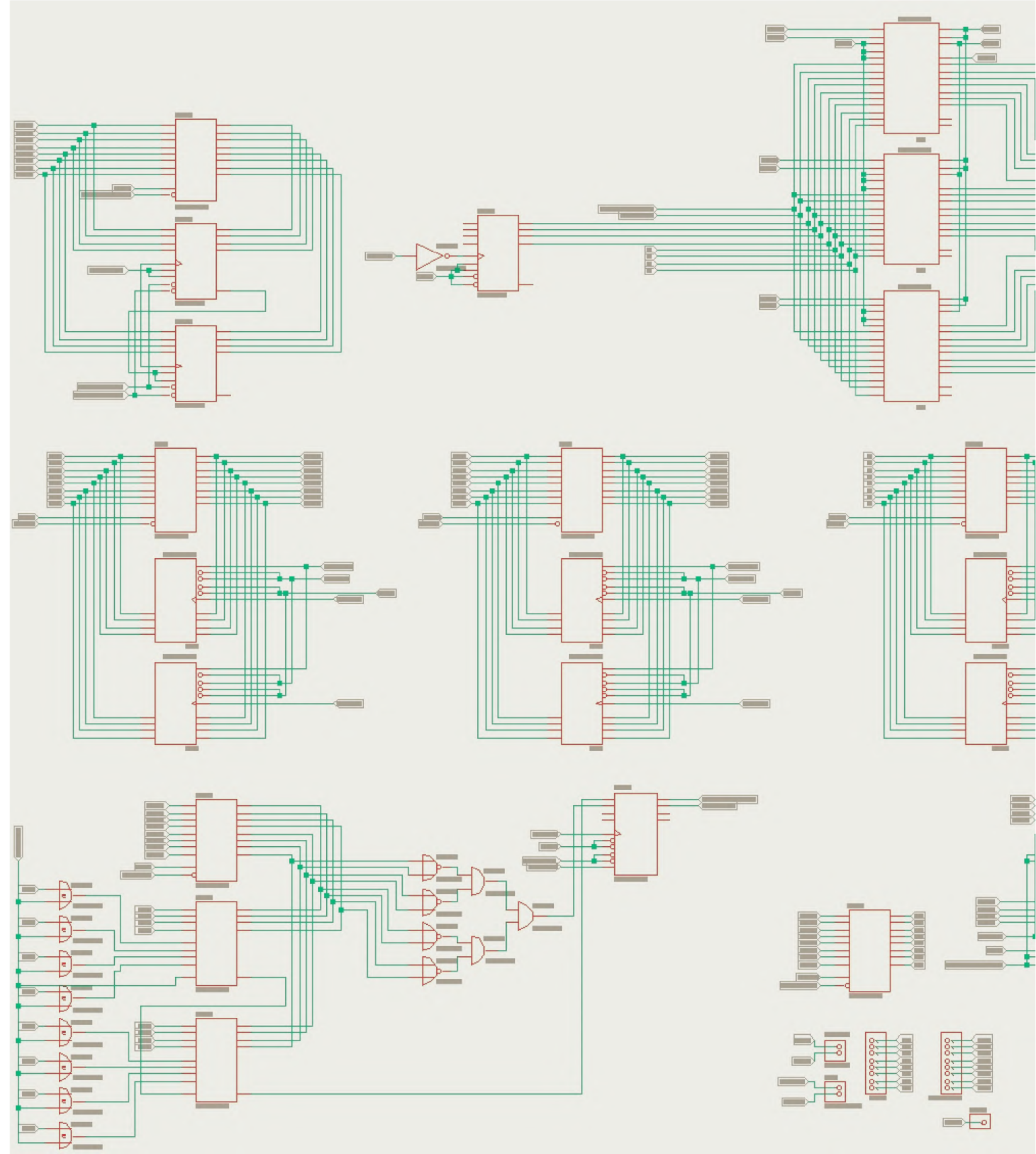
Nº1

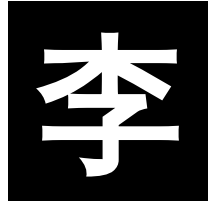
# What I've Done

Nº1.1

# Engineering

Growing up, I've always wanted to be an inventor. In grade 6, I decided that the best way to get around to doing that was to become an engineer.



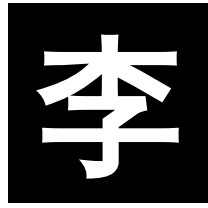


My Achievements In Engineering (linked) —

**Self-Designed CPU**  
**Operating System**  
**Posture Corrector**  
**Face-Tracking Turret**  
**CNC Machine Controller**

**Anonymous Social Media Website**  
**Reddit Web Scraper**  
**Discord Bot Developer (For 5+ Servers)**  
**Competitive Programming**  
**[ ... More On My Github ]**





## 2019- The Beginning & Game Development

As I was very into video games at the time, one day I randomly decided to learn the basics of making video games. The engine I picked? The Godot game engine. Around the same time, my parents decided to send me to a programming class, and that's when I started learning Python.

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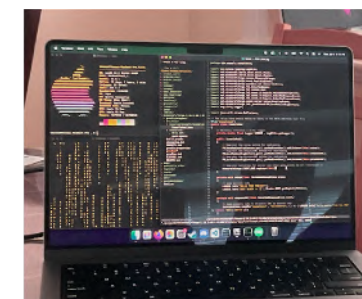
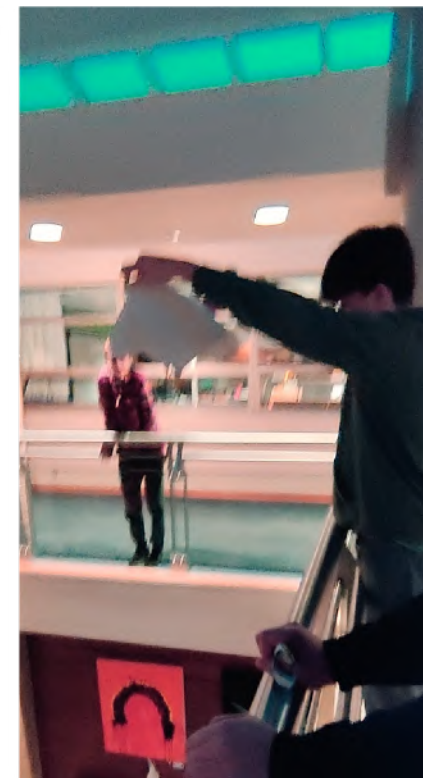
## 2020- Woah This Coding Thing is Actually Kinda Fun

In 2020 after making hundreds of small Python calculator programs and 2D platformers, one day my friend asked me if I could code him some Discord bots. I said yes, and quickly started researching about libraries and servers. Falling in love with how much fun programming goofy little bots and showing them off to my friends was, I started loving this craft and decided to start dedicating more and more time to it. It was also around this time I started getting curious about the hardware side of programming, leading me to start learning how to use an Arduino.

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## 2021- Exploration, Creation, Learning, and Discovery

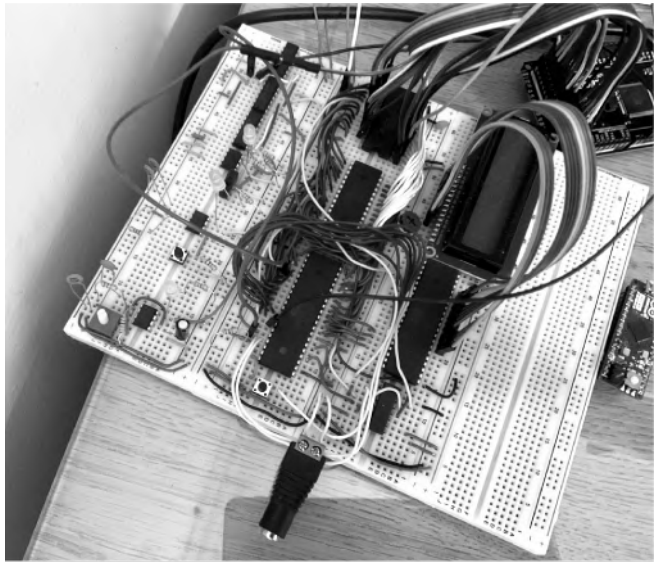
In 2021 I started to really enjoy programming a lot more, and worked on a lot of different projects to learn more about programming. I made many fun projects, like face-tracking turrets, remote-controlled cars, AI chat bots, web scrapers, and just really having a blast making cool things using both the software and hardware skills that I've acquired throughout the past 2 years to allow the stupid little gadgets that I've always imagined of to come to life. While janky, the things I built in my room using the spare electronic parts I took from old devices make for the best memories that I have of engineering in the entire time I did it.



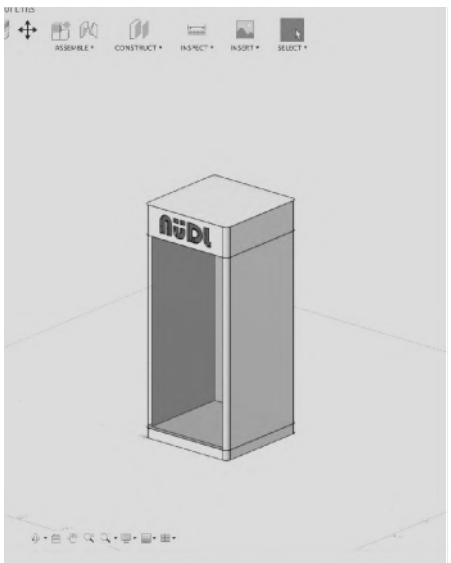
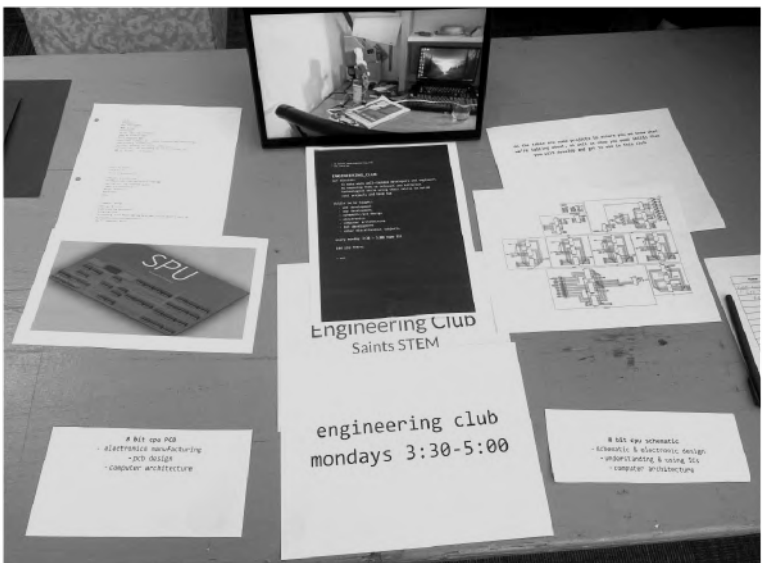
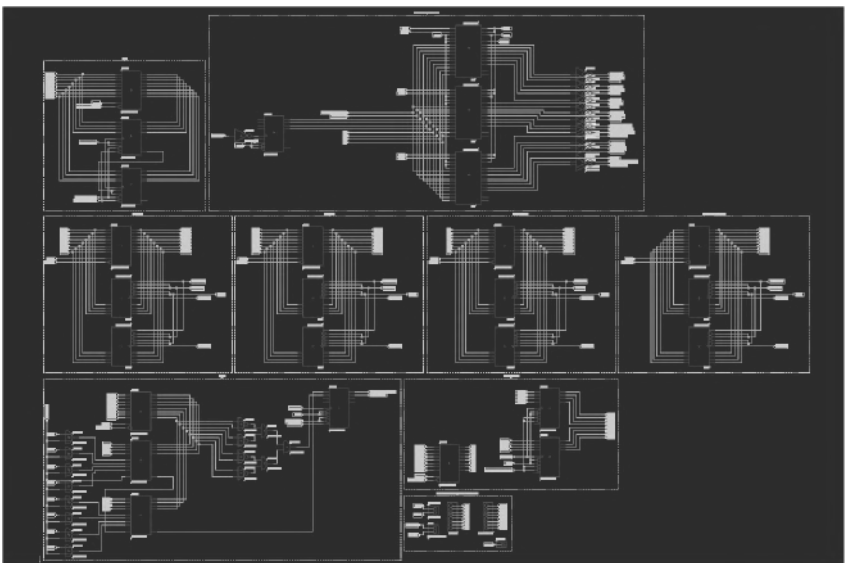


# 2022- Obsession

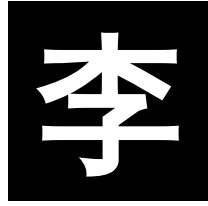
2022 was the year that I started taking engineering much more seriously, falling down a rabbit hole of doing difficult things for the sake of them being difficult. I spent many late nights during this time trying to figure out *why* the things I worked with worked, such as how the Python interpreter ran my program, or how the Arduinos I tinkered with managed to output and read electrical signals. This led to an obsession of learning about engineering's lowest levels, leading to me eventually building a CPU and learning assembly to write my own OS. I also started taking much more initiative this year, helping found the game development club at my school as well as founding the engineering club. I also focused a lot of time and energy on massive projects, such as designing vending machines that would cook food live for people (which sadly didn't work out), or making an anonymous social media forum which I actually made, but didn't work out either. This obsession and curiosity about electronics engineering led to an explosion in the quality of my projects, but it came at the expense that my waking hours started consisting only of two activities: doing my engineering projects & chasing girls (which didn't work out either).



```
explorer  x  gdt.asm
THOMAS  C  O  g
functions  gdt.asm
1  ; GDT
2  gdt_start:
3
4  gdt_end: mandatory null descriptor
5  db 0 ; 00 = double word (4 bytes)
6  db 0 ; 00 = double word (4 bytes)
7
8  gdt_code: code segment descriptor
9  ; base=0, limit=0xffff, this just means that we want to use the whole memory
10 ; 1st flag: (present) (privilege) (descriptor type) -> 0000
11 ; 2nd flag: (code) (conforming) (readable) (writable) -> 0000
12 ; 3rd flag: (granularity) (size) (reserved) (available) -> 0000
13
14 db 0xffff ; limit, bits 0-15
15 db 0 ; base, bits 0-15
16 db 0 ; base, bits 16-23
17 db 0x00000000 ; flags
18 db 0 ; base, bits 24-31
19
20 gdt_data: data segment descriptor
21 ; same as code segment descriptor, but with different type flags
22 ; 1st flag: (code) (conforming) (readable) (writable) (accessible) -> 0000
23 db 0xffff ; limit, bits 0-15
24 db 0 ; base, bits 0-15
25 db 0 ; base, bits 16-23
26 db 0x00000000 ; flags
27 db 0 ; base, bits 24-31
28
29 gdt_end:
30 ; The GDT is now defined, we need to tell the CPU where it is located.
31
32 ; gdt_descriptor
33 gdt_descriptor:
34 db gdt_end - gdt_start - 1 ; size of GDT
35 db gdt_start ; address of GDT
36
37 ; define some handy constants for the GDT segment descriptor offsets, which
38 ; are what segment registers must contain when in protected mode. For example,
39 ; when we set DS = 0x10 in PM, the CPU knows that we mean it to use the
40 ; segment described at offset 0x10 (i.e. 16 bytes) in our GDT, which in our
41 ; case is the DATA segment (0x0 - 0x100000000 -> CODE; 0x10 -> DATA)
42
```







## 2023- Burn Out. Big Time.



After spending the past year exerting my mind to the max about engineering and only engineering, I burnt out big time on anything STEM-related in 2023. I spent most of this time either enjoying my youth with friends, spending time with family, relaxing, or trying different subjects in hopes that one would stick again just like engineering did. After spending half a year trying to find myself, I started picking up interests and hobbies again.





## Nº1.2

# Buisness

In the middle of my burnout, I signed up for the Wharton Global High School Business Competition with my friends for fun. We ended up flying out to Philadelphia as one of the top 10 teams in the world.





Nº2

# What I'm Doing Now



Nº1.3

# The Arts

After getting back on my feet, I realized that one of my favourite things to do is to tell stories to people. And then I realized that's exactly what art is.



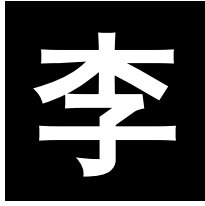




Nº2.1

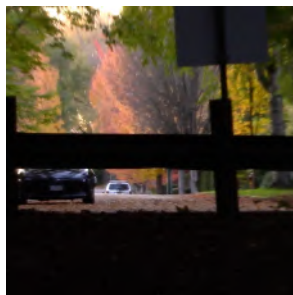
## The Present

I'm now making music, doing photography, making films, and experimenting with a whole lot of other art mediums. (In fact, every single image not taken of me in this document was taken by me!) That also doesn't mean I've given up on business or tech though, as I currently try to incorporate all of those into the new projects that I do, I guess making me into a jack-of-all-trades of some sort.

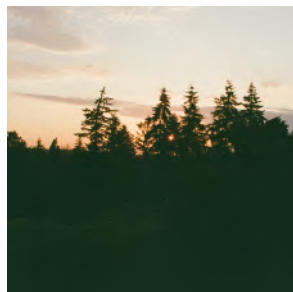
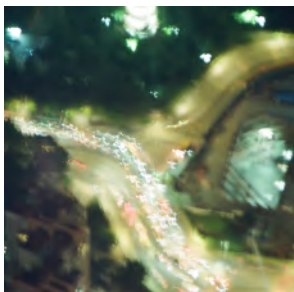


Nº2.2

## Projects I'm Working On



**MEN THAT CRY.** is a student-formed men's mental health collective that I founded, which takes action against the unspoken parts of being a man using art. I'm currently working on getting it off the ground.



Film and music are also new passions of mine, and I'm working on some experimental music and short films in my free time right now.

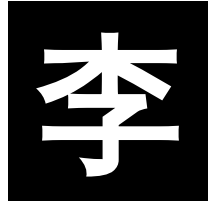




Nº2.3

## Organizations & Clubs

Apart from my projects, I've also started involving myself in my community via volunteer organizations and clubs that I help out at. Currently, I'm the Service Chairperson at the Richmond Lahoo Leo's Club, a Senior AmBASAdor at the Bolton Academy of Spoken Arts, as well as a co-founder and leader at our school's branch of The Young Investor's Society.



Nº2.4

## Goodbye

Hopefully this document has given you a peek into my life and told about who I am, the things I do, and why I do them. If you've been inspired by any of my work or would like me to work with you on just about anything, please consider reaching out! -Thomas Li.





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