

# Ching-Cheong Lee

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## About Me

Graduated from HKUST with an M.Phil degree in Mathematics, worked in both academic and nonacademic fields, with solid knowledge in both frontend and backend programming.

## Experience

### Software Engineer

Mid of May 2023 ~ Present<sup>2.17 Years</sup>

Wonderbricks Limited, Hong Kong

- Worked on Mobile Application and App Submission
- Worked on Devops and Cloud Infrastructure with Infrastructure as Code
- Worked on Backend Development in multiple languages for different usecases
- Developed various CICD pipelines for backend and frontend projects

### AI Engineer

15 Aug 2022 ~ April 2023<sup>8.4 Months</sup>

Eye Catching Limited, Hong Kong

#### Skills Applied

Python. PyTorch  
Typescript. Tensorflow, Onnx  
C++. Libtorch, Imgui, CMake Ecosystem

- Maintained angular project
- Studied eye-tracing related algorithm
- Studied and deployed machine learning algorithm in web-app and desktop-app
- Completely translated a BlazeFace model in python into the same model in libtorch of C++ for GUI application
- Implemented methods to ensure weights in pytorch model can be used in libtorch model
- Studied CMake and developed software to combine libtorch model and imgui application

### Senior Software Developer

Sep 2021 ~ July 2022<sup>10.9 Months</sup>

RaSpec Intelligence Inspection Limited, Hong Kong

#### Skills Applied

Python. Selenium, Boto3, Mongoengine, gRPC, PyTorch, Tensorflow  
Annotation. CVAT, COCO-Annotator  
AI-General. Data Annotation, DataLoader with Various Data Augmentations, Model Training for Rust Detection, Model Training for Crack Detection  
AI-Models. GAN for Producing Synthetic Data, Faster RCNN from Scratch and its Modification, Single Stage Headless Face Detector into Rust Detector

#### Scope: Web Related

- Maintained React Next project
- Implemented data scrapping for house transactions records
- Automated the process of tracking latest rtk-data from official geodetic website and data-processing pipeline using selenium and pywinauto

#### Project 1: Object Detection

- **Text Detection.** Managed to run an open-sourced text detection (EAST) to facilitate signboard defect classification

## Blog

<https://machingclee.github.io/blog>

## Portfolio

<https://machingclee.github.io/portfolio>

## Education

### MicroMaster in A.I. and Programming

Tecky Academy

Mar 2019 ~ June 2019

### M.Phil. in Mathematics

The Hong Kong University of Science and Technology

Sep 2012 ~ Aug 2014

### B.Sc. in Mathematics

Pure Math Option, 1st Class Honor

The Hong Kong University of Science and Technology

Sep 2009 ~ June 2012

## Skills

### Source Control

Git

### Infrastructure as Code

Terraform, Serverless Framework

### Deployment

Docker, Github Actions

### Cloud (AWS)

Security Group, Target Group, Load Balancer, ECS Fargate, Route53, S3, CloudFront, Lambda Functions, API-Gateway, RDS, SQS, VPC

### Typescript

Tailwind, React, React-Native, Redux, Redux-Toolkit, React-Query, Next.js, Electron.js, Electron with Next.js, Node.js, Nestjs, Express.js, Socket.io, Twilio.js, Mongoose.js, Prisma.js, Prisma-Kysely.js

### Kotlin

Spring Boot, JPA, JOOQ, Domain Driven Design, JUnit 5 and MockK

### Golang

Gin, Goose, Sqlc, Azure-sdk for Voice, Go-Jet

### Python

Tensorflow v2, PyTorch, Pandas, Flask, ONNX, Openpyxl, Boto3, Mongoengine, Selenium, Conda

### C++

CMake Ecosystem, Libtorch, OpenCV, ImGui for Desktop App

### C#

Windows Presentation Foundation

### Database Query & Management

PostgreSQL, MongoDB

- **Crack Detection.** Helped implement detection model for crack and spalling
- **Rust Detection.** Implemented two solutions: (i) Text removal, then classification pipeline; and (ii) direct object detection model using faster rcnn

### Project 2: Synthetic Data Generation

- **DefectGAN.** Implemented image-generation model following [this paper](#) that generates synthetic data on cracks and spallings for training defect detection models on facades
- **Text Removal.** Experimented with existing algorithms like various GAN or image-inpainting method in pytorch. Finally I follow [this paper](#) to obtain a text eraser with satisfactory performance

## Software Engineer

EAB Systems (Hong Kong) Limited, Hong Kong

Aug 2020 ~ Mid-Aug 2021 <sup>1.03 Years</sup>

### Skills Applied

Typescript. React, Redux, React-Native, Express, Mongoose, Sendgrid, Twilio, socket.io  
Python. Pandas, Tensorflow v2

### Project 1. Web Application

- Built video conferencing frontend and backend application in React, Twilio and express
- Built CMS system that lets users create their own single page application

### Project 2. Machine Learning Related

- Built CSV Importer (together with an express layer and a Flask layer) that can parse a csv/excel file and perform:
  - **Data Classification.** Classified column based on existing data using LSTM model with two dense layers and finally a softmax ([sample code](#))
  - **Auto Date-reformatting.** Based on machine learning model (transformer in NLP), translated all common form of date into YYYY-MM-DD format ([sample code](#))

## Frontend Developer

eLearningPro, Hong Kong

Sep 2019 ~ Aug 2020 <sup>11.9 Months</sup>

### Skills Applied

Javascript. React  
Python. tkinter, pyinstaller  
Art. Adobe Premiere, Adobe Photoshop, Saola Animate (CSS Animation)

- Create HTML5 Games, maintain web pages and construct React frontend application
- Created a python GUI project for text extraction from an image (a work necessary to translate old fresh game into html5 game, [detail](#))

## 2D Game Artist

深圳瘋子科技有限公司, Sheng Zheng

Jan 2018 - Dec 2018 <sup>11 Months</sup>

- Responsible for constructing 3d accessories, creating environment art and character design. Game that I worked on [link](#)

## Senior Research Assistant

Department of Mathematics, Hong Kong Baptist University, Hong Kong

Mar 2015 - Oct 2015 <sup>6.9 Months</sup>

- Study HJB equations arised in specific financial games

### Rust

Implementation of Elliptic Curve Digital Signature Algorithm, [Code Explanation](#) and [Implementation](#)

### Data Streaming/Monitoring

Kafka with Debezium

### Message Broker

RabbitMQ, AWS SQS

### Art

Photoshop CC, 3DS Max, Saola Animate (HTML5 Game), 2D Game Character Design

## Art Portfolio

<https://www.artstation.com/check-ercc>

## Research Assistant

Sep 2014 - Feb 2015<sup>6 Months</sup>

*Department of Mathematics, Hong Kong University of Science and Technology, Hong Kong*

- Study the properties of viscosity solution of HJB equations

## Teaching Assistant

Sep 2012 - June 2014<sup>1.82 Years</sup>

*Department of Mathematics, Hong Kong University of Science and Technology, Hong Kong*

- Fulfill teaching duty as required in obtaining studentship in the course of M.Phil study. Subjects include: [1] Calculus II, [2] Linear Algebra, [3] Mathematical Analysis, [4] Real Analysis.