Ching-Cheong Lee

9121-8040 https://github.com/machingclee machingclee@gmail.com

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 2.2 Years

Wonderbricks Limited, Hong Kong

Skills Applied

AWS.	S3, Cloudfront, Lambda, EC2-loadbalancer, ECS-Fargate, Route53, API-Gateway and its Websocket-API, RDS, RDS-Proxy, VPC and VPC Endpoints
Frontend.	Tailwind, Vite, React, Redux-toolkit, RTK-Query, React-Native, React-Native-Reanimated, Next, Expo-CLI, Algolia, Socket.io-client, RevenueCat, Push Notification for iOS and Android
Backend.	Nestjs, Express, Spring Boot (Kotlin), JOOQ, JPA, Domain Driven Design, Prisma, Prisma-Kysely, Expo Push Notification, PostgreSQL, MongoDB, Socket.io, RabbitMQ, Redis, Stripe and Stripe's Event Integration
DevOps.	Replicate infrastructure by Terraform, Develop Github Actions to Automate: **(1)** Backend Deployment onto ECS; **(2)** Frontend Deployment onto S3 and Cloudfront; **(3)** Deployment of Lambda functions

- Fully in charge of all tasks in devops and cloud infrastructure using Terraform
- Design and developed various CICD pipelines (workflows) using github actions for backend and frontend projects
- Worked on mobile application using React-Native and worked on app submission to App Store and Google Play
- Conduct database schema design and schema migration using Prisma
- Worked on backend development in multiple languages for micro-services and for different usecases in mainly two frameworks:
  - **Nodejs.** Nestjs, TypeORM
  - **Kotlin.** Spring Boot, JOOQ, JPA

  Some are deployed as ECS services and some are deployed as lambda functions (e.g., spring boot project is deployed as a snapstarted lambda)

AI Engineer

15 Aug 2022 ~ April 2023 8.4 Months

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 leanring algorihtm 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

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, RTK-Query, 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

Senior Software Developer

Sep 2021 ~ July 2022 [10.9 Months]

RaSpect 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
- **Crack Detection.** Helped implement detection model for crack and spalling
- **Rust Detection.** Implemented two solutions: **(i)** Text removal, then classifcation 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

Aug 2020 ~ Mid-Aug 2021 [1.03 Years]

EAB Systems (Hong Kong) Limited, Hong Kong

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)

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/checkercc

Frontend Developer
Sep 2019 ~ Aug 2020 [11.9 Months]

eLearningPro, Hong Kong

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
Jan 2018 - Dec 2018 [11 Months]

深圳瘋点子科技有限公司, Sheng Zheng

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

Senior Research Assistant
Mar 2015 - Oct 2015 [6.9 Months]

Department of Mathematics, Hong Kong Baptist University, Hong Kong

- Study HJB equations arised in specific financial games

Research Assistant
Sep 2014 - Feb 2015 [6 Months]

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 [1.82 Years]

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: (i) Calculus II, (ii) Linear Algebra, (iii) Mathmatical Analysis, (iv) Real Analysis.

Selected Side Projects

- **Timetable System for a Drawing School (木棉花水墨畫室)**
  http://some_link.com
  This is a timetable system that obeys the methodology of Domain Driven Design. It focuses on managing the classes registered by students of different courses, it also provides an organized view of the payment status of each student for each season (4 months).
- **Desktop Application to Learn Japanese**
  https://machingclee.github.io/portfolio/Dictionary-App-with-Nextjs-and-Electronjs
  This electron application aims at capturing the screenshot of a game/video as a note, in each note user can mark down their own translation and meaning of the word. The application can also capture the text from a selected area of an image by calling goolge vision API.