Ching-Cheong Lee

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ABOUT ME

I graduated from HKUST with an M.Phil degree in Mathematics, worked in both academic and nonacademic fields, with solid knowledge in frontend programming. Passionate about problem solving, which pushes me to expand my technical skills persistently.

EXPERIENCE

Software Engineer
Wonderbricks Limited, Hong Kong

Mid of May 2023 ~ Present

Technologies.

Frontend. React, Redux-toolkit, React-Native, React-Native-Reanimated, Expo-CLI, Algolia, Socket.io-client, Push Notification for iOS and Android

Backend. Express, Mongoose, Socket.io, Algolia, Googleapis + Nodemailer, Prisma, Prisma-Kysely, Expo Push Notification, MySQL, PostgreSQL, MongoDB, RabbitMQ, Redis

AWS. S3, Cloudfront, Lambda, EC2-loadbalancer, ECS-Fargate, Route53, API-Gateway, RDS

Scope of Works.

Web Application.

Frontend.
- Build, revamp and maintain React projects in Typescript

Backend.
- Maintain SpringBoot project, build APIs using MyBatis and mongo-java-driver
- Integrate google's GMail and Pub/Sub api into exising Spring Boot Application

Mobile Application.

Frontend.
- Develop the project from scratch by React-Native and EXPO
- Implement the idea from project manager, throughout consideration of how frontend can work with new data and develop the corresponding API
- Create custom components by React-Native-Reanimated

Backend.
- Develop entire backend application from scratch by nodejs, express, socketio, etc
- Develop Lambda functions in python and nodejs for LLM summary report excel and word generation
- Develop realtime text-messaging application by socket-io
- Implement jwt authentication and refresh-token mechanism in both front and backend
- Develop Push notification system for ios and android
- Careful consideration on the data-type of primary keys. Replace the purely random UUID by ULID to improve performance of insertion
- Design and unify structure of response so that frontend can handle any error gracefully
- Mistakenly use MongoDB as a relational DB, migrate the project from using MongoDB into PostgreSQL, responsible for making all the coding adjustment for the db changes

System Design.
- Develop message queue system using RabbitMQ to:
  - Rate limit api which has a limit of 100 concurrent calls (azure openai service)
  - Delay actions by means of DeadLetter Queue
- Develop in-app notifcation to separate user-specific data from our API, making those API cachable (userId independent)

iOS Deployment to AppStore with EXPO.
- Internal Ad-Hoc Distribution
- Store Build for publishing to App Store Connect
- Internal and External Test via TestFlight
- App Submissions and Rejections
- Managed everything above with 4 stages (DEV, UAT, POC, PROD) with different bundleIdentifier, ascAppId, version and buildNumber, env (EXPO_PUBLIC_'s)

DevOps / CICD.
- Create automated deployment workflows for frontend and backend via github actions. Which includes:
  - Containerize the nodejs backend > push to image registry > update task defintion > instruct ECS Fargate to use updated task
  - Deployment of documentation project onto S3 and cache-invalidation of cloudfront

Other.
- Initiated a google‑authenticated documentation project by using Docusaurus to record detail that a developer should know
- Lead, guide and nurture junior programmer by constantly sharing articles, my github projects, and related youtube videos when there are knowledge that they lack of

PERSONAL HOMEPAGE

I keep sharing what I have learnt via my blog posts:

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 (First Class Honor)
The Hong Kong University of Science and Technology
Sep/2009 ~ June/2012

SKILLS

Source Control
Git

Deployment
Docker, Github Actions

Cloud (AWS)
Security Group, Target Group, Load Balancer, ECS Fargate, Route53, S3, CloudFront, Lambda Functions, API-Gateway, RDS

Java
Maintain Springboot, Hibernate, MyBatis, JOOQ

C#
Windows Presentation Foundation

C++
CMake Ecosystem, Libtorch, OpenCV, ImGui for Desktop App

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

Python
Tensorflow v2, PyTorch, Pandas, Flask, ONNX, Openpyxl, Boto3

Typescript
React, React-Native, Redux, Redux-Saga, Next.js, Electron.js, Electron with Next.js, Node.js, Express.js, Socket.io, Twilio.js, Knex.js, Mongoose.js, Prisma.js, Prisma-Kysely.js

AI Engineer
Eye Catching Limited, Hong Kong

15 Aug 2022 ~ April 2023

Technologies.
 Python. PyTorch
 Typscript. Tensorflow, Onnx
 C++. Libtorch, Imgui. Cmake Ecoysystem

Scope of Works.

- Maintain angular project
- Study eye-tracing related algorithm
- Study and deploy machine leanring algorihtm in web-app and desktop-app
- Completely translate a BlazeFace model in python into the same model in libtorch of C++ for GUI application
- Implement methods to ensure weights in pytorch model can be used in libtorch model
- Study CMake and develop software to combine libtorch model and imgui application

Senior Software Developer
RaSpect Intelligence Inspection Limited, Hong Kong

Sep 2021 ~ July 2022

Technologies.
 Python. Selenium, Boto3, Mongoengine, gRPC, PyTorch, Tensorflow
 Data Annotation Tool. 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 of Works.
 Web or Hadware Related.

- Maintain React Next project
- Data scrapping for house transactions records
- Automation on tracking latest rtk-data from official geodetic website and data-processing pipeline
- Work with a local grpc based service in Python to interact with a compiled binary (.exe), messed with multi-threading stuff

 Object Detection Related.

- **Text Detection.** Manage to run an open-sourced text detection (EAST) to facilitate sign-board defect classification
- **Crack Detection.** Help 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

 Image Generation/Inpainting.

- **DefectGAN.** Implemented image-generation model following the paper that generate 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

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

Scope of Works.

- Build video conferencing frontend and backend application in React, Twilio and express
- Build CMS system that lets users create their own single page application
- **Machine Learning Related.** Build CSV Importer (together with an express layer and a Flask layer) that can parse a csv/excel file and perform:
  - **Data Classification.**
    - Sample Code: Link
    - Classify column based on existing data using LSTM model with two dense layers and finally a softmax
  - **Auto Date-reformatting.**
    - Sample Code: Link
    - Based on machine learning model (transformer in NLP) that can translate all common form of date into YYYY-MM-DD format

Front-end Developer
eLearningPro, Hong Kong

Sep 2019 ~ Aug 2020

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

Scope of Works.

- Create HTML5 Coursewares, 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
深圳瘋点子科技有限公司*, Sheng Zheng*

Mar 2015 - Oct 2015

- 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

- Study HJB equations arised in specific financial games

Research Assistant
Department of Mathematics, Hong Kong University of Science and Technology, Hong Kong

Sep 2014 - Feb 2015

- Study the property of viscosity solution of HJB equations

Teaching Assistant
Department of Mathematics, Hong Kong University of Science and Technology, Hong Kong

Sep 2012 - June 2014

- Fulfill teaching duty as required in obtaining studentship in the course of M.Phil study. Subjects include:
  - Calculus II
  - Linear Algebra
  - Mathematical Analysis
  - Real Analysis