KAR WAN LEONG

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Summary

I am a software engineer, coding enthusiast, started out as a web dev in 2018, doing Angular, Dot Net, and MySQL in my internship and my FYP, proceed to Python programming and Computer Vision in 2019. I have many years (2020-2024) of experience writing Python code, which involves C++ programs and libraries implementations, mostly on Windows Operating System. I developed advanced libraries in C++, such as WinRT Capturing Library and low level KMDF Windows Driver. Lately, I've been going back to explore how web technologies have been evolved, mainly React and Django. My future plan is to diving into machine learning and AI projects, as well as hardware/robotics.

Education

Universiti Tunku Abdul Rahman (UTAR)

Bachelor of Computer Science (Honours) May 2014 – May 2019

- *FYP: Quiz Web Application Using Angular and MySQL*

Master of Engineering Science Sept 2019 – Jan 2024

- *Dissertation: License Plate Detection Using Deep Learning Object Detection Models*

Experience

Freelance | Programmer Mar 2020 – Aug 2024

- Developed algorithms/solutions using computer vision technology to solve client's problem.

Inventech | Software Engineer Intern Oct 2018 – Dec 2018

- Designed and implemented front-end and back-end solutions using Angular and .Net Core.
- Developed SQL queries to optimize data extraction efficiency, enabling real-time visualization of product metrics within the factoring monitoring system.

Projects

License Plate Detection Using Deep Learning Object Detection Models (Dissertation)

- Fine-tuned YOLOv4, EfficientDet, CenterNet, Faster R-CNN, and SSD models on the CCPD License Plate dataset (100,000+ images).
- Improved YOLOv4 accuracy by 13.32% on the CCPD License Plate dataset through custom convolution layers and optimized preprocessing

WinRT Windows Graphics Capture Library

- Developed high-performance screen capture tool using WinRT, compiled into a DLL and integrated with Python using ctypes.

KMDF Keyboard Filter Driver

- Created a Window Kernel-Mode Driver Framework (KMDF) driver for keylogging and user-mode keystroke injection.

Solutions/Algorithms/Programs Using Python/Computer Vision

- Built multi-threaded, high-performance automation systems with OpenCV, YOLOv10, Boost, and Raspberry Pi. Developed user-friendly Windows applications using PySide6 and MVP architecture.

Skills & Tools

Languages	Python • C/C++ • Javascript • HTML/CSS • Typescript • Dart
Frameworks/Tools	FastAPI • PyQt6 • PySide6 • Git • OpenCV • Numpy • Boost • YOLO • Tensorflow • Pytorch • ROS • React.js • Next.js • Tailwindcss • Flutter • Django • Docker • Godot
Systems & Platforms	Windows • Ubuntu • Arch Linux • Raspberry Pi • VMware
Dev Tools	Git • Github • Vim • SQL • MongoDB • PostgreSQL

Languages

English, Mandarin, Malay