BO KAI HUANG

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Education

National Yang Ming Chaio Tung University, M.S. in Computer Science — Sept 2020 – Sept 2022

- **Poster:** ICLR 2023 Q-Pensieve: Boosting Sample Efficiency of Multi-Objective RL Through Memory Sharing of Q-Snapshots (link)
- **Class project:** Accelerated the Demoaisacking algorithm with OpenMP, achieving over **3x** speed improvement.

National Cheng Kung University, B.S. in Computer Science — Sept 2016 – June 2020

- **Thesis:** Distance Transform on **FPGA**: Performing the Distance Transform with an FPGA, while using C++ for data transfer and display, achieves a **67%** speed improvement compared to using the OpenCV library alone.
- **Project:** Implemented some state-of-the-art **demosaicking and Super-Resolution** algorithms including ML methods and traditional ISP techniques, Provided as research baselines for other lab members.

Experience

Software Engineer, Trend Micro — Oct 2022 –

- Designed an innovative batch processing solution for large-scale data transfers, segmenting records into gzip-compressed batches, reduced API timeouts by **23%**
- Experienced in leading cross-team deployments, with our agent handling product rollouts for multiple teams and coordinating seamless, efficient communication across departments.

Open-Source Projects

Mado — github.com/sysprog21/mado

Mado is an open-source library enabling advanced window system features for **resource-constrained embedded devices**. I contributed to

(1) Replaced pre-calculated **fixed-point** sine tables with a 5th order polynomial approximation, reducing code size by **65%** (link)

(2) Enhanced window system by introducing GIF animation support. (link)

(3) Enable Mado to function as a VNC-based graphical backend, supporting memory analysis with Valgrind and perf in headless environments wihout the dependency on traditional windowing systems (link)

(4) Support TinyVG specification, enabling advanced vector graphics rendering without a GPU or even an FPU , recognized as the first open-source implementation of a TinyVG renderer using fixed-point arithmetic. (link)

Presentation

Random Number Generator Sharing — Session link

Give a talk at COSCUP about how random numbers are generated, covering methods such as using stdlib, hardware random number generators (HWRNG), and **/dev/urandom in Linux**.

Awards

IC Contest — 2018, 2019, 2020

Cell-Based Digital Circuit Design Category, ***Second Prize***, ***Third Prize***

- Calculate GPS distance using Haversine Formula
- Image Convolutional Circuit Design with ReLU function