Khoa Pham

0909003646 | phamkhoaa18@gmail.com | linkedin.com/in/pham-duc-anh-khoa-0696931bb/ | khoaphamce.github.io

Education

Ho Chi Minh City University of Technology - VNU (HCMUT) Sep. 2020 – July 2024

Bachelor's degree, Computer Engineering

- Coursework: Data structure and Algorithm, Computer architect, Programming fundamental, Operating system, Computer vision, Microcontroller unit.

Experience

C/C++ Software Engineer Sep 2022 – Present

OPSWAT Vietnam

- Design/Implement algorithm for encoding detection by building finite state machine, satisfy potential customers from Japan.
- Develop QR code sanitization from image file by integrate computer vision's framework, used by marketing team as highlight feature for product: https://www.opswat.com/blog/stop-qr-code-phishing-protect-critical-infrastructure.

Projects

Monocular semantic scene completion on embedded system Sep 2023 - July 2024

Capstone project *Grade: 9.78/10*

- Convert point cloud based 3D semantic scene completion model into monocular base by adding depth module and pseudo-LiDAR, achieved 13.19 in mIoU metric.
- Reduce baseline computation cost by 17,77 % in FLoPS by proposing a structural pruning pipeline.

Guider device Jan 2021 - Sep 2022

Bach Khoa innovation contest *Prize: Consolation prize*

- Design and implement back-end module of end-to-end campus path planning software with Python and deploy onto Raspberry Pi, able to give users shortest path.
- Implement A* algorithm to find shortest path inside university campus, achieved an average of 0.3 seconds inference time when find the shortest path from a point to another.
- Support sending planned path in form of an image to users' phone via NFC by integrate NFC module to Guider device.

Port ZBar library from Linux to Windows June 2024 - Present

Open source project: github.com/khoaphamce/ZBar-Visual-Studio

- Successfully port open source ZBar computer vision library from Linux based code to Visual Studio Windows project by converting to Windows API function call.
- Zbar library run without any problem after integration into software that is running on Windows.

Publications

Optimizing 3D Semantic Scene Completion on Embedded Systems

2024 International Seminar on Intelligent Technology and Its Applications (ISITIA) - ***Accepted***

- Proposed optimization pipeline solution related to adaptive structural pruning on 3D scene completion neural network, improved inference speed by 32%.
- Reduce overhead of the model, successfully deploy improved model onto Jetson Xavier NX embedded system by eliminate redundant computation.
- Write a framework for measuring performance metrics, successfully measure models' inference speed on Jetson Xavier NX using Python JTOP API.

Programming Skills

Languages: C/C++, Python, Linux Scripting, Assembly, Javascript.
Frameworks: PyTorch, Tensorflow, OpenCV (C++ and Python), Tensorboard, gtest, NodeJs.
Tools: Git, CMake, Docker, Visual Studio, Jira, Confluence.