DOAN HUU NOI

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EDUCATION

Soongsil University, Seoul, South Korea *Sept 2013 - July 2015*
Master's Degree in Video & Image Processing.

Post and Telecom. Institute of Tech., HCM City, Vietnam *Sept 2008 - Jan 2013*
Bachelor's Degree in Information Technology.

BACKGROUND

Programming	C++, Python, Pytorch, SIMD (SSE, AVX, NEON), TensorRT, OpenCV, Open3D, OpenGL, QT, MFC, CUDA, CMake
Research	Image Processing, Computer Vision, Deep Learning, Stereo Vision, Depth Estimation, 3D Gaussian Splatting, Pattern Matching, Object Detection, Machine Learning, 3D Rendering, Defect Inspection, Model Deployment
Language	Vietnamese, Korean, English

EXPERIENCE

Zoom Nov. 2022 - Current
Video Processing Software Engineer *Singapore*

- Optimized core image processing library, accelerating the resampling algorithm with AVX2 intrinsics.
- Contributed to 3D telepresence project:
  - Conducted the system setup: camera setup, intrinsic calibration, stereo calibration, multiple cameras synchronization.
  - Conducted the data collection: collected synthesis (1,000+ subjects) and real (30 subjects) datasets.
  - Improved model performance: implemented a faster half-resolution version, achieved 3× speed-up with TensorRT, and optimized the dataloader.
  - Designed and implemented a Python-based demo pipeline (to be ported to C++), with PyTorch and OpenGL Cubemap; accelerated display speed by 10× with GPU tensor rendering.
- Tech Stack: C++, Python, Pytorch, SIMD, TensorRT, Open3D, OpenCV, OpenGL, Video Processing, Deep Learning, 3D Rendering, 3D Gaussian Splatting, Depth Estimation, Model Deployment.

MVTech Nov. 2018 - Nov.2022
Image Processing Researcher *South Korea*

- Participated in developing a computer vision processing framework (named RAVID)
  - Developed the Shape Finder algorithm which is a feature-based matching algorithm. (View Demo)
  - Developing very fast convolution and morphology operations using SIMD and In-place Processing.
  - Developed a simple printed character recognition algorithm based on NCC.
- Developed defect detection algorithms for semi-conductor inspection machines.
- Tech Stack: C++, SIMD, Image Processing, Computer Vision.

Enscape Feb. 2017 - Oct. 2018
Software Engineer *South Korea*

- Developed defect inspection algorithms using Halcon library.
- Developed applications for semi-conductor inspection machines.
- Tech Stack: C++, MFC, Halcon, OpenCV, SIMD.

Chowis Sept 2015 - Oct. 2016
Software Engineer *South Korea*

- Developed Android applications for a human skin analysis kit.
- Tech Stack: C++, Java, Android

PUBLICATION

Google Scholar Profile

1. **A Method for matching pattern using image and an apparatus of thereof**,HN. Doan, KS. Kwon,S. Korea Domestic Patent,2021,No:1024319840000, View Demo.
2. **Method for hole filling in 3D model, and recording medium and apparatus for performing the same**, US Patent,MC. Hong, BS. Kim, TD. Nguyen, HN. Doan,2018,PDF.
3. **Hole-Filling algorithm with spatio-temporal background information for view synthesis**,IEICE Trans. on Information and Systems,HN. Doan, TD. Nguyen, MC. Hong,2017,PDF.
4. **A spatial-temporal hole filling approach with background modeling and texture synthesis for 3D video**, Proceedings of the 2015 Conf. on research in adaptive and convergent systems,HN. Doan, MC. Hong,2015,Link.
5. **Hole filling algorithm using spatial-temporal background depth map for view synthesis in free view point television**, Pacific Rim Conf. on Multimedia,HN. Doan, BS. Kim, MC. Hong,2015,Link.
6. **Directional hole filling algorithm in new view synthesis for 3D video using local segmentation**, Proceedings of the 2014 Conf. on Research in Adaptive and Convergent Systems,HN. Doan, TA. Nguyen, MC. Hong,2014,Link.

PERSONAL PROJECTS

Technical Blog

I write articles to describe what I have learnt about Image Processing, Computer Vision, Machine Learning, 3D Rendering and other miscellaneous. Moreover, I develop the XImageTool application to demonstrate how those algorithms work intuitively.

XImageTool

XImageTool is a free tool used for simulating fundamental Image Processing, Computer Vision, Machine Learning algorithms and 3D Rendering.

XText

XText is a free OCR software.