# 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.

## 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, a feature-based matching method capable of effectively handling missing or broken objects. (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

## CORE SKILLS

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|---|---|
| **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 |

## 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 many articles not only to share my knowledge about Image Processing, Computer Vision, Machine Learning, 3D Rendering and other miscellaneous but also to learn new technologies. I also develop a small application to intuitively demonstrate how these algorithms work.

**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.