

## Contact

[www.linkedin.com/in/nguyentrinhh1989](https://www.linkedin.com/in/nguyentrinhh1989) (LinkedIn)

## Top Skills

FoxPro  
Hikvision SDK  
Identify Face

# Nguyễn Trịnh

Senior Software Engineer  
Ho Chi Minh City, Vietnam

## Summary

A highly focused software development with experience in positions of senior software developer, project technical leader, AI engineer. Having strong skills on C++, Python with fields of computer vision and artificial intelligence.

Proficient in C# WPF .NET framework for UI/UX with windows application.

Experience on analyzing requirement, communicating directly with customer and leading tasks.

Ability to learn and grasp quickly, along with ability to research and solve difficult problems to find suitable solutions.

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## Experience

### OPSWAT

Senior Software Engineer  
August 2024 - Present (8 months)  
Ho Chi Minh City, Vietnam

### Freelance

Freelance Developer  
April 2024 - August 2024 (5 months)  
Ho Chi Minh City, Vietnam

Working on some small projects:

- Decompiled source code from applications that developed by Visual FoxPro language, deploy these applications to LAN with MSSQL Server 2008, ODBC Data Sources and power shell scripts to setup.
- Develop a demo C# .NET application to identify face from video, the face detection uses YOLOv8 or UltraFace and face identification uses ResNet27 in FaceONNX package for feature vector.
- Develop a demo C# .NET application to identify face from Hikvision camera by Hikvision SDK.

### Personify Inc

Senior Software Developer

June 2022 - March 2024 (1 year 10 months)

Ho Chi Minh City, Vietnam

Working as Senior Software Developer position on products of webcam enhancement and presentation that uses .NET WPF MVVM for UI/UX and C++/python for backend.

Duties:

- Develop a network remote controller application by gRPC framework on .NET.
- Develop a C++ module that use Chromium Embedded Framework to run JS google mediapipe for getting face and body pose landmarks.
- Develop animation avatar that will be acted same as user via webcam, using Unity/C# for displaying avatar and C++/google mediapipe AI model/ image processing for getting tracking data (such as eye's pupil, body pose landmarks).
- Develop image AI generative module: integrate Stable Diffusion AI model to WPF application.
- Develop module for augmenting user's communication by image transition follow their conversation; the technique is combination of speech-to-text converting, text-to-vector embedding, embedding vector comparison and AI image generative.

## Freelance

### Master Thesis Project

August 2021 - June 2023 (1 year 11 months)

Ho Chi Minh City, Vietnam

Because of some personal reasons, I couldn't finish this master course, I hope that I will try again with another course in the future.

Graduation thesis topic: Identify object with 3D reconstructed face from 2D image/video. This thesis tries to prove 3D identify method is more effective than identifying directly from 2D image/video.

My working on this thesis:

- Researching and implementing YOLOv4 model by Keras for training and inference, building a face detector that is trained with WiderFace dataset.
- Researching and implementing PRNET, RNET, HRNET models for inference, include comparing evaluation with MARMSE metric: porting these model from original platform to Keras and building a system to be able to reconstruct 3D face.

Refer original models: <https://github.com/YadiraF/PRNet>, <https://github.com/microsoft/Deep3DFaceReconstruction>, <https://github.com/yinguobing/facial-landmark-detection-hrnet>

- Researching and implementing VGGFace model for identifying object from 3D reconstructed face, comparing performance to YOLOv4 method, draw a conclusion about which method is appropriate in which situation.

## VNUHCM - University of Science

### Master Student

November 2018 - June 2023 (4 years 8 months)

Vietnam

Learning about mathematics for computer science, artificial intelligence, machine learning, natural language processing, data mining.

Some of course projects:

- Apply deep learning for facial expression classification.
- Implement Transformer model for machine translation.
- Implement algorithm for big integer multiplication by Fast Fourier Transform.

Graduate thesis: compare face identify efficiency between 2 type of detecting, the one is direct identify from 2D image by machine learning model (like YOLO), the second is 2 step: reconstruction 3D face from 2D image and identify from reconstructed 3D face

## FPT Software

9 years 2 months

### Senior Software Engineer

March 2021 - April 2021 (2 months)

Ho Chi Minh City, Vietnam

Developing a software prototype module for detecting the Dry Eye syndrome from eye video.

Duties:

- Applying image processing by python for detecting iris, pupil and extracting syndrome information.
- Developing a C++ module for real-time detecting iris and pupil, support for integrating this module to Swift language application.

### Senior Software Engineer

January 2021 - March 2021 (3 months)

Ho Chi Minh City, Vietnam

Developing backend features on Linux OS by C++ language for a web application that is used for saving/viewing examination data and image.

Duties:

- Developing logging feature by extending spdlog open source library.
- Developing backup feature for periodic backing up DICOM images in server.

### Artificial Intelligence Engineer

July 2020 - January 2021 (7 months)

Ho Chi Minh City, Vietnam

Developing module for finding implant manufacture information from dental x-ray image.

Duties:

- Applying image processing for extracting features from image: segmentation, extract parts of implant, classify parts to features.
- Classifying implant to manufacture type from extracted features.

### Senior Software Engineer

November 2019 - June 2020 (8 months)

Vietnam

Developing an application for converting programming language from C++ to C#.

Duties:

- Using Clang based framework for analyzing structure of C++ source code, converting from C++ to C# based on analyzed structure result.
- With complicated C++ source code, studying current processing and manually converting to C# source code.

### Artificial Intelligence Engineer

March 2019 - November 2019 (9 months)

Vietnam

Developing an application for medical image segmentation.

Duties:

- Researching solution and develop module: research AI segmentation model such as unet/segnet, build AI model by Python/Keras, use OpenVINO for increasing performance.
- Developing C#/WPF module for display image segmentation's result.
- Developing C++ DLL that can be called from available Delphi application for getting segmentation result from AI model.

### Project Technical Lead

September 2014 - March 2019 (4 years 7 months)

Vietnam

Working as project technical leader alongside the C++ project for developing MRI (Magnetic Resonance Imaging) software.

#### Duties:

- Discussing directly with customer about requirements, problems encountered and solutions.
- Transferring knowledge, practical experience and solving most of the technical problems encountered for other members.
- Mentoring team members in development and technical progression.

#### Senior Software Engineer

September 2012 - March 2019 (6 years 7 months)

Vietnam

Working as developer and team leader alongside the C++ project for developing MRI (Magnetic Resonance Imaging) software.

#### Duties:

- Mastering knowledge about a subsystem of MRI machine.
- Analyzing, creating design, developing, refactoring, improving performance, testing, fixing bug following requirement and Investigating and creating solution report for problems occurred while developing.
- Creating guideline for project's tools, reviewing documents and supporting for new members. Creating the estimation, schedule and leading others members for doing task.

#### Software Architect

March 2018 - June 2018 (4 months)

Develop web application for hospital management: PHP and AWS for web application, MySQL for database.

#### Duties:

- Investigate technology for project.
- Analyse requirement
- Create ADD and database design (MySQL)

#### Software Engineering Trainee

June 2012 - August 2012 (3 months)

Vietnam

Working as software developer alongside the mocking MFC project for checking coding rule for C++ source code.

#### Duties:

- Design and developing GUI for application by MFC.
- Researching and applying regular expression for checking coding rule .
- Testing and fixing bugs for application.

#### Internship

March 2012 - May 2012 (3 months)

## Vietnam

Working as software developer alongside the embedded project for creating a remote control car that is controlled by computer.

Duties:

- Programming a C# application for send signal to remote controller at USB port
- Using mikroC IDE for programming firmware of PIC18F4550 microcontroller for receiving signal from receiver at USB port
- Create detail design for C# application and firmware.

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## Education

VNUHCM - University of Science

Master, Computer Science · (2018 - June 2023)

VNUHCM - University of Science

Bachelor's degree, Software Technology · (2007 - 2011)