



# THANH NGUYEN

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## SELF-INTRODUCTION

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My career goal is to become specialist in computer vision and software development. Currently, my working and researching area are in 2D and 3D object recognition, explainable AI for time series data, N-dimension tensor data decomposition, AI solution for medical image analysis and automotive system. I'd like to take challenge in working and team building. Reading, travelling and sport activities such as soccer, swimming are my hobbies.

## SKILLS

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**Knowledge:** Computer vision, AI, Cloud (AWS), DevOps, MLOps

**Programming:** C/C++, Python, MATLAB, LaTeX

**Project Management:**

- 2 years in Project Management (5 projects)
- 4 years in Technical Leader (12 projects)

**Languages:** English(Fluent), Chinese (Fluent), Japanese (Beginner)

**Framework, SDK:** Opencv, EmguCV, Pytorch, Tensorflow, Autodesk SDK (for constructing BIM)

## EDUCATION

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**Master of Computer Science** | *Institute of photonics and communications*

National Kaohsiung University of Applied Science

Feb. 2015 – Feb 2017

Kaohsiung, Taiwan

**Bachelor of Engineering** | *Electric and Telecommunication Engineering*

University of Communication and Transportation

Sep 2008–June 2013

Hanoi, Vietnam

## WORK EXPERIENCE

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**Collaborated AI specialist**

medBrain LTD.

Mar. 2022 – Present

<https://www.viceph.net/>

- Researching and developing AI technology solutions of medical image processing for orthodontic analysis
- Optimizing and developing deep learning models on cloud server using AWS and Kubernetes technologies

**Project Leader/Project manager/AI architecture solution engineer**

Panasonic RD Center Vietnam - Panasonic Corp.

Jan. 2021 – Present

Hanoi, Vietnam

- Researched and proposed AI solutions related 2D and 3D object recognition for Panasonic's RD projects
- Project manager and technical leader in AI solution development projects
- Built up AI team for company (currently 15+ AI engineers)

**Senior Computer Vision research engineer**

Panasonic RD Center Vietnam - Panasonic Corp.

Sep 2018–Jan 2021

Hanoi, Vietnam

- Researched and implemented digital image processing algorithms and deep learning models for computer vision projects such as: 2D image object recognition and segmentation, 3D BIM modeling, objects tracking for Panasonic Lumix camera, defect inspection in factory, etc.
- Researched and implemented model compression methods for deep learning models that deployed on edge devices and mobile phones such as quantization, pruning

**Machine Vision/Embedded software engineer**

Hon Hai Technology Group (Foxconn Corp.)

Feb 2017–Sep 2018

Bac Ninh-Hanoi, Vietnam

- Developed Linux-based embedded system for GPON/dual bands WiFi router, Linux/ Android Set Top box
- Designed and developed Automatic Optical Inspection (AOI) system for defect detecting in factory production lines such as defects inspection on printed circuit board (PCB), electrical components detection, solder paste checking, cover surface checking

### **Electronic and Telecommunication engineer**

Sep 2013 – Jan 2015

Viet Thang Industrial Equipment and Technology Transfer Company

Hanoi, Vietnam

- Developed and deployed telecommunication system for Security force and Military
- Transferred Security technologies and products for B2B business

## **HIGHLIGHTED PROJECTS AND RESEARCH THEMES**

**Automated for Cervical Vertebral Maturation (CVM) assessment** Researching theme

Researched and implemented AI solution for CVM classification

### **xAI for time series data**

Researching theme

Researched and implemented GradCAM and Layer-wise Relevance Propagation (LRP) methods for video action recognition models

### **3D point cloud data object recognition**

Researching theme

Investigated and implemented Deep Learning model for in put  
3D point cloud collected by LiDAR sensor in Indoor environment

### **N-dimension Tensor Decomposition**

Researching theme

Research and implement High-Ordered Singular Value Decomposition to multi dimension Tensor data

### **2D Cephalometry Landmarks detection**

Project

Role: Project Leader/Technical leader, size: 3 members

Responsibility:

- Research and creating deep learning model for auto detecting landmark point on X-Ray Cephalometry images
- Developed the models on local server and cloud server. The model was applied to Viceph's commercial product that is an effective assistant tool for orthodontist (Please refer to Viceph.net)

### **Developing auto 3D individual tooth identification tool based on CBCT images**

Project

Role: Project Leader/Technical leader, size: 3 members

Responsibility:

- Investigate AI model for detecting and constructing 3D individual tooth from CBCT image (Please refer to Viceph.net)

### **Automatic 3D BIM modeling for building management and construction site**

Project

Role: Project Leader, size: 4 members

Responsibility:

- Apply Instance Segmentation model to recognize RGB-D image
- Generate 3D point cloud from multiple RGBD images then apply object recognition to detect objects
- Develop auto-tool for constructing 3D BIM of objects such as walls, ceiling, floor, etc. using Revit-API and xBIM

### **Digital Twin Development based on 3D point cloud recognition**

Project

Role: Project Leader, size: 6 members

Responsibility:

- Developing 3D point cloud recognition model for detecting Indoor-objects
- Constructing 3D models from detected objects using Revit-API and Unity (C#)

<b>Object detection and Room layout recognition for construction site</b> Role: Project Leader, size: 7 members Responsibility: - Applying YOLOv5 for detecting objects in construction site - Developing AI model for segmenting objects from input room layout drawing	Project
<b>Multiple objects tracking for digital camera</b> Role: Technical Leader, size: 3 members Responsibility: - Applying AI Siamese network for multi-object tracking from input camera - Optimized the model by using quantization and pruning method (with Tensorflow) to deploy on Panasonic Lumix camera	Project
<b>Development of embedded system for GPON/WiFi router</b> Role: Embedded Engineer, project size: 20 members Responsibility: - Brought-up Yocto-Built Linux OS on the GPON router that running MediaTek chip - Developed the GPON/WiFi router's web interface - Investigated and developed some functions in CWMP – CPE WAN Management Protocol for the router - Tested and maintained WiFi beam-forming function for the router	Project
<b>High-Ordered Singular Value Decomposition for image enhancement</b> - Applied CANDECOMP/PARAFAC (CP) and Tucker decomposition on Frequency domain of image Tensor to enhance image quality	Researching theme
<b>Energy-based AI solution for defect detection on industrial products</b> - Developed and deployed energy-based algorithms and AI model for detecting defects on industry project such as dot and dust on LCD panels, bubble inspection on glass	Project

## HONORS AND AWARDS

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<b>Company best project award</b> Project of Digital Twin for business development	Q2-2021
<b>Company best employee award</b> Multiple objects tracking based on Siamese network applying on digital camera	Q1-2020
<b>First Place Award in the 13th Digital Image Processing and Creative Design Competition</b> High-Ordered Singular Value Decomposition for image enhancement	Taiwan 2017
<b>Foxconn full education scholarship award</b> Full scholarship for Master Student at National Kaohsiung University of Applied Science	2015