Thanh Nguyen

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Self-Introduction

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

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

Master of Computer Science | ***Institute of photonics and communications*** — Feb. 2015 – Feb 2017
National Kaohsiung University of Applied Science — Kaohsiung, Taiwan

Bachelor of Engineering | ***Electric and Telecommunication Engineering*** — Sep 2008–June 2013
University of Communication and Transportation — Hanoi, Vietnam

Work Experience

Collaborative AI specialist/Co-Developer — Mar. 2022 – Present
medBrain LTD. — https://www.viceph.net/

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

Assistant Principal Engineer/Project manager/AI specialist — April. 2020 – Present
Panasonic RD Center Vietnam - Panasonic Corp. — 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 — Sep 2018–April 2020
Panasonic RD Center Vietnam - Panasonic Corp. — 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 — Feb 2017—Sep 2018
Hon Hai Technology Group (Foxconn Corp.) — 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#)

Object detection and Room layout recognition for construction site Project
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

Multiple objects tracking for digital camera Project
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

Development of embedded system for GPON/WiFi router Project
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

High-Ordered Singular Value Decomposition for image enhancement Researching theme
- Applied CANDECOMP/PARAFAC (CP) and Tucker decomposition on Frequency domain of image Tensor to enhance image quality

Energy-based AI solution for defect detection on industrial products Project
- 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

Honors and Awards

Company best project award Q2-2021
Project of Digital Twin for business development

Company best employee award Q1-2020
Multiple objects tracking based on Siamese network applying on digital camera

First Place Award in the 13th Digital Image Processing and Creative Design Competition Taiwan 2017
High-Ordered Singular Value Decomposition for image enhancement

Foxconn full education scholarship award 2015
Full scholarship for Master Student at National Kaohsiung University of Applied Science