Curriculum Vitae

Personal Information	
Name: Nguyen Duy Cuong	**Date Of Birth:** April 20th, 1991
Nationality: Vietnamese	**Gender:** Male
	**Marital status:** Married
	Address: Hemisco Condominium, Phuc La, Ha Dong, Hanoi
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WORKING EXPERIENCES		
	Location	**Year**
Company: Samsung SDS Vietnam CO., LTD **Role:** Project manager - AI Research Lab **Product:** AICR - OCR for Vietnamese **Job descriptions:** ▪ Manage production process of Nexfinance AICR - An AI system for OCR in Vietnam's market (Link: https://www.youtube.com/watch?v=QyC9prVAzj4) ▪ Work closely with sale's team to research requirements and advance features for AICR from Vietnam's market (hand writing, key information extraction…) ▪ Estimate cost and resources, making and defending the plan, meeting with clients, controlling the development process, and reporting to the group leader. ▪ Research about AI technologies that can apply to AICR's product. Some AI models are still SOTA at this time (Mar 2021) ▪ Work with development team to build a full-stack deep learning solution for back-end engine (infrastructure, data management, debugging and tuning, evaluation and deploying models) ▪ Final system had very high availability and reliability that was experienced by several clients.	Cau Giay - Hanoi	2019/09 - current
Competition: MC-OCR competition (part of RIVF 2021 conference)	Hanoi	2020/12 - current

▪ Lead a team that achieve top 2 solutions for key information extraction from Vietnamese receipts. More detail in https://github.com/ndcuong91/MC_OCR		
Company: Panasonic R&D Center Vietnam **Role:** AI Technical Leader **Product:** Embedded AI **Job descriptions:** ▪ Work closely with the project leader to analyze requirements, estimate resources and create a plan for the project. ▪ Build a full stack deep learning solution for projects which include preparing data and environment, training, deploying and evaluating performance of model. ▪ Describe, summary model's structure (Mobilenet, VGG…) and algorithm (SSD, Depthwise separable convolution…) to hardware team (for programing in FPGA, ARM or mobile's GPU) ▪ Modify model's structure, convert model to many different frameworks to deploy in edge devices. ▪ Apply low-end advance techniques (post-training quantization, coarse-grained pruning…) to make model as small as possible to deploy in hardware with very limited resources (memory, compute capacity…) while keeping competitive accuracy (<1% lost) ▪ Control accuracy and performance of the final product to meet customer's requirements. ▪ Report, meeting with clients.	Ba Dinh -Hanoi	2017/09-2019/08
Competition: Zalo Landmark Identification 2018 ▪ Classify famous Vietnam's landmarks with 103 classes. ▪ **Rank 2 in public leaderboard with top-3 error: 0.92%**	Hanoi	2019

▪ Apply many techniques to build a clean and reliable dataset: ● Remove duplicate files in many classes by MD5 checksum ● Remove corrupt image (0Kb) ● Re-label image with wrong format ● Visualize data distribution, handle **imbalance data** by using upsampling, downsampling and weighted loss. ● Prevent model's overfitting by data augmentation (flip, color jitter, lighting, random crop, random rotation) ▪ Fine-tuning model with pre-trained params from ImageNet ▪ Apply some advanced techniques to get better predictions: ● Use 5 Test Time Augmentation (TTA) with arithmetic mean. ● Ensemble 3 model Resnext5_32x4d, Resnet_152 and Densenet161 with gmean. ▪ Other techniques: ● Freeze/ unfreeze layer for faster training ● Add more data in training set by using predict result in test set ● Visualize result using t-SNE to find noise and some classes that can easily make wrong prediction More details in: https://github.com/titikid/ZaloAIchallenge2018		
Master Thesis: Hand Gesture Recognition with 3D Convolution ▪ Classify hand gesture in video from Kinect sensor. ▪ Solve very little data problems by upsampling and generating additional data by MoCoGan network.	Hanoi	2019/01-current

▪ Prevent model's overfitting by data augmentation (crop, rotation, color jitter) ▪ Use Mask R-CNN network to generate segmented hand region from RGB image. ▪ Modify network architecture and transfer learning from UCF101 dataset.		
Company: Panasonic R&D Center Vietnam **Role:** Technical supporter (AI/Image processing engineer) **Product**: Factory solution, Vision System. **Job descriptions:** ▪ Investigate feasibility of deep learning model to apply in company's projects (Human pose estimation, Connector measurement, barcode detection) ▪ Collect data, prepare environment, deploy deep learning model (Deepcut, Yolov3) ▪ Porting Caffe from Ubuntu to Window by modifying Caffe to support new layers. ▪ Develop Template Matching's engine with high accuracy and performance to apply in many projects. ▪ Control all image processing modules such as Lighting, Optical, Camera Calibration, Camera system, Camera Computer Interface and Image Processing Algorithms of big vision system (Laser Maker machine) ▪ Build and propose some vision systems with many challenge tasks: motion blur, out of focus…	Hanoi	2017/03- 2017/09
Company: Avatech Vietnam **Role:** Deep Learning / Machine Learning / Image Processing engineer **Product:** Camera, Vision System. **Job descriptions:**	Hanoi, Vietnam	2014/06- 2017/02

▪ Apply machine learning algorithms (SVN, ANN…) and deep learning models in classification (Inception v1, Inception v2 reduce…) using Caffe, Theano, Keras in SMT product. Final engine got classification accuracy >97% ▪ Develop image processing algorithms for company software using OpenCV and company's library. ▪ Apply parallel programming in GPU using CUDA to speed up algorithms. ▪ Develop focus stacking algorithms for multi-focused images. ▪ Develop template matching algorithms using C++ and IPP. ▪ Develop vision system for OCR, defect detection that include many image processing algorithms like Camera calibration, Object detection .		

Practical Experiences
▪ Programming Language: Python / C / C++ / .NET / Java ▪ Framework: Caffe / Mxnet/ Pytorch / Keras / Tensorflow / Theano ▪ Machine learning/ statistical tools: Tensorboard / pandas / matplotlib ▪ Others: Jupyter notebook

Special Education	
AI training class – Panasonic R&D center Vietnam	

An AI training program for key engineers that aims to help students gain experience in the Deep Learning field.	Artificial Intelligent Solution Center, Osaka, Japan 01/2019- 02/2019
On Job training – ATI Vietnam	
An Computer Vision training program for engineers that aims to help students gain experience in the Computer Vision field.	ATI's headquarter, Incheon, South Korea 10/2014-12/2014

Education	Year
Master in Computer Science – Hanoi University of Science and Technology, Hanoi	**2018-2019**
Electrical Engineering – Hanoi University of Science and Technology, Hanoi	**2009 - 2014**
Aptitude student (Math majored) – Nguyen Tat Thanh specialized high school, Yenbai, Vietnam	**2006 - 2009**

Foreign Language			
	Fluent	**Good**	**Beginner**
English*		✔	
Japanese			✔

* Got 830 TOEIC score in IIG (2013)

Hobbies
- Rubik's cube (former top 10 of Vietnam with single 9.31s) - Table tennis - Traveling - Running

Achievements / Certification
2021: Silver medal, MC-OCR competition
2019: Panasonic’s CTO award for excellent AI/Image Processing project
2009: Odon Vallet’s prize
2009: Honorable mention, Mathematics, National Excellent Contest