QUAN MINH TRAN

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EDUCATION

University of Information Technology, Vietnam National University HCMC, Vietnam
Bachelor, Software Engineering (High Quality Program) | GPA: 8.98 / 10 (Top-1) Aug 2020
Thesis: Evaluating the efficacy of small face recognition by Convolutional Neural Networks with interpolation based on auto-adjusted parameters and transfer learning (9.9/10)

RESEARCH INTERESTS

Machine Learning and Deep Neural Network: Convolutional Neural Network, Graph Neural Network, Multimodal Representation Learning, Recommendation System, Deep Transfer Learning, Self-supervised learning.
Frameworks and tools: Python, Pytorch, Torch Geometric, Keras, Tensorflow, OpenCV, Pandas, Jupyter, MLFlow, Wandb, ZenML

RESEARCH EXPERIENCE

***AI specialist*, Choice Vietnam (NGO)** HCMC, Mar 2023 - Current
Taking Trash Bin (funded by WWF)

Propose and create a product empowered by Deep Learning with an IoT device to recognize 7 different trash's materials, to give feedback and educate people. The solution is funded by WWF and will be launched in Hue city.

***Data&AI Lead*, Kyanon Digital** HCMC, 2021 - Current
University-Industry collaboration program - AI lead

Propose the concept of collaboration between Kyanon Digital with universities in terms of building the community to solve practical Machine Learning problems. Being the co-lead of a Research Hub co-laboratory, Community co-building, Project co-supervision, and Co-training. The program has already proceeded with the University of Science, Vietnam National University-Hanoi, and -HCMC.

Smart Retail (Team size: 4) - Team leader.

Brainstorm and propose computer-vision-based solutions to increase customer experience on offline shopping. Optimize customer monitoring with DeepSORT and Kalman Filter. Implement Person Re-identification. Propose propensity to buy detection using OpenPose. Propose recommendation based on customer behavior using Graph Neural Network. Research image search with self-supervised learning methods. Setup, manage, and implement the project. Design solution infrastructure.

Face Attendance System (Team size: 2) - Team leader.

Propose learning without forgetting method using ArcFace combined with PoD loss, outperforms other methods. Reproduce and conduct model experiments on Metric Learning, Incremental Learning. Design system infrastructure for serving.

Digital Training Course for Unilever Vietnam (Team size: 4)

Program editor (lecture, lab, quiz), lecturer and teaching assistant of 2 specializations: Executive Data Science (4 courses) and Python for Data Science (4 courses).

***AI Researcher*, Kyanon Digital** HCMC, 2018 - 2021
Influence Prediction (Team size: 4, funded by VinIF)

Analyze and process data crawled from Facebook, 9,225 users, 27,442 posts and 24901 interactions. Research and propose a method to predict the influence of a given post before publishing using Graph Neural Network and Attention mechanism, outperforms GCN, GraphSAGE, GAT, achieves Average Precision 95,42%.

Amplification factor score (Team size: 3, funded by VinIF)

Propose a method to detect micro-influencers and measure their amplifications on social media networks. Create Amplified Graph Convolutional architecture, no labeling effort, can deal with multi-dimensional edge attributes, robust representation learning, outperforms other SOTA networks such as GCN, GraphSAGE, GAT with mAP 89.04%.

Bottle cap image classification (Team size: 1)

Preprocess, analyze 8000 bottle cap images. Propose light-weight SkippedVGG architecture that outperforms and is significantly lighter than VGG, ResNet, DenseNet with accuracy 99,33%.

***Research Student*, Intelligent Computing and Image Processing Lab** SaiGon University, HCMC, 2017 - 2020

Low-resolution face recognition

Create a CNN transformation mechanism to retain high performance on extremely low-resolution face images. Propose an efficient transfer learning approach for the method.

Bayesian Optimization

Design a mechanism for low-resolution face recognition leverage automated Bayesian Optimization search to seek optimal CNN architecture regardless of image resolution variance.

PUBLICATIONS

Tran, Q. M., Pham, V. T., Nga, D. T. T., & The Bao, P. (2022). Evaluating the Efficacy of Small Face Recognition by Convolutional Neural Networks with Interpolation Based on Auto-adjusted Parameters and Transfer Learning. *Applied Artificial Intelligence*, 1-23. (2022)

Quan M. Tran, Hien D. Nguyen, Tai Huynh, Kha V. Nguyen, Suong N. Hoang, Vuong T. Pham, Measuring the Influence and Amplification of users on Social Network with Unsupervised Behaviors Learning and Efficient Interaction-based Knowledge Graph, *Journal of Combinatorial Optimization (JOCO)*, 44(4), pp. 2919–2945, 2022. (2022)

Tran, Q. M., Nguyen, H. D., Nguyen, B. T., Pham, V. T., & Le, T. T. (2021, November). Influence Prediction on Social Media Network through Contents and Interaction Behaviors using Attention-based Knowledge Graph. In *2021 13th International Conference on Knowledge and Systems Engineering (KSE)* (pp. 1-7). IEEE. (2021)

Tran, Q. M., Nguyen, L. V., Huynh, T., Vo, H. H., & Pham, V. T. (2019, November). Efficient CNN Models for Beer Bottle Cap Classification Problem. In *International Conference on Future Data and Security Engineering* (pp. 713-721). Springer, Cham. (2019)

HONORS AND AWARDS

2021 - 2022

Certificates of Achievement: In recognition of Impactful Contributions, *Kyanon Digital, 2021 and 2022*

Best presentation award, *KSE 2021 Conference*

2019 - 2020

Award for very good grade graduation, *University of Information Technology, Vietnam National University*

2015 - 2019

Full-tuition scholarships, Academic incentive scholarships, *University of Information Technology, Vietnam National University*

Scholarships for outstanding student, *KMS, Fujinet, BIDV*

Consolation Prize on the National Olympic Math Competition, *Vietnam Mathematical Society*

CERTIFICATES

Research school on “Machine learning and rough path theory for sequential data analysis”, Vietnam Academy of Science and Technology, 2023

Convolutional Neural Network, Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization, *Coursera, 2020 - 2021*
Winter school on Mathematics for Data Science, *Vietnam Institute for Advanced Study in Mathematics, 2020*
IMH School on Inverse Problem and Deep Learning, *Vietnam Academy of Science and Technology, 2019*

REFERENCES

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