HAI PHAN

Homepage ◇ Google scholar ◇ Github
PhD Student ◇ Computer Science ◇ Auburn University, AL
m: (+1)2177502413 ◇ Email: pthai1204@gmail.com ◇ CMU email: haithanp@alumni.cmu.edu ◇ AU email: htp0009@auburn.edu

EDUCATION

Auburn University, AL, USA *May 2021 - Present*
PhD candidate, Computer Science and Software Engineering
Carnegie Mellon University (CMU), Pittsburgh, PA, USA *January 2019 - May 2020*
Master of Science, Electrical and Computer Engineering (ECE)
University of Science, Ho Chi Minh City, Vietnam *Sept 2009 - 2013*
Bachelor of Science, Advanced Program In Computer Science (**GPA**: 3.61 / 4.0)

TECHNICAL STRENGTHS

Programming Languages	C++, Objective-C, Python, Matlab
Deep Learning frameworks	Caffe, Tensorflow, Pytorch, MXNet, CUDA programming

WORK EXPERIENCE

SilverAI Feb 2023 - Present
AI Research Scientist

Proposing novel techniques in Generative AI deployed in SnapEdit app used by $50K$ users worldwide.

Adobe Research, Media Intelligence Lab September 2022 - December 2022
Research Scientist Intern

Proposing a novel Recommendation System to search millions of projects on the Behance platform. With an impressive accuracy rate of up to **90**%, our system can effectively rank the top 10 projects from an extensive collection of millions of items. Additionally, our system can increase the speed by up to **3** × by re-ranking millions of items.

Meta/Facebook AI, Virtual Reality Lab June 2022 - September 2022
Research Scientist Intern

Proposing a new 3D relightable model to apply various lighting effects to the human face in a 3D world. Our model can generate highly realistic relit images with an impressively low pixel value error rate of **10** when compared to the original images. Hundreds of 3D human data are collected for training relightable models

Computer Science Lab, Auburn University May 2021 - Present
Research Associate

- Proposing novel Explainable AI (XAI) techniques to enhance the interpretability of face matching and improve the top-1 accuracy rate by approximately **11**% for Out-of-Distribution faces, such as masked faces, profile faces, sunglasses, and more.
- Proposing a novel user-friendly system to improve human interpretation for face recognition. The user studies are conducted through 30 people with different backgrounds and achieved **85**% when they use our proposed system to recognize faces.

Cylab biometrics, Carnegie Mellon University Jan, 2017 - May, 2021
Research Associate

- Efficient deep learning for mobile devices. Researched and developed facial recognition software for devices such as iOS, Android, JetsonTX, and Xavier, using the CMU face detection and matching C++ SDK. The model achieves a significant **8** × improvement in inference speed. Our facial recognition model was capable of running at **8-10** FPS on an iPhone 7, **125** FPS on the Xavier GPU, and **20** FPS on the Xavier CPU.
- Proposing efficient deep learning for mobile devices and developing 3D Face Pose Estimation. The proposed method outperformed previous methods with a Normalized Mean Error rate of just **3**%.

Misfit/Fossil/Axon May, 2014 - June, 2017
Software Engineer/Research engineer

- Developed an iOS Misfit production app that has been widely used by millions of users worldwide.

- Developed an API that streams data to record human activities. The streaming can last up to **16** hours and data are pushed to the server efficiently.
- Developed a real-time non-intrusive heart rate estimation algorithm using face or finger video data. The algorithm obtained low error rate of **1**%. The results are output in just **9-10** seconds.
- **Machine Vision**: Developed a real-time correlation filter object tracking C++ software development kit (SDK) that is capable of tracking the movement of people and objects. The SDK achieved an impressive speed of **30** FPS on iPhone 5 and 6 while maintaining a very high level of accuracy.

ACTIVITIES

Reviewer of Neurips 2021

Reviewer of ICLR 2020, 2021

Oral Presentation at WACV 2020, Colorado, USA — March, 2020

Oral Presentation at ISPA 2013, Trieste, Italy — Sept, 2013

AWARDS

Travel award, CVPR 2022. — June, 2022

EPSCoR graduate research scholar award News ($25,000). — May, 2022

Woltosz PhD Fellowship adward ($24,000) — May, 2021

PUBLICATIONS

H. Phan, Anh Nguyen, *DeepFace-EMD: Re-ranking Using Patch-wise Earth Movers Distance Improves Out-Of-Distribution Face Identification*, CVPR 2022 (acceptance rate: 25%). Arxiv Code Demo

H. Phan, Z. Liu, D. Huynh, Z. Shen, K. Cheng and M. Savvides, *Binarizing MobileNet via Evolution-based Searching*, CVPR 2020 (acceptance rate: 22%). cvpr2020

H. Phan, D. Huynh, Y. He, M. Savvides, and Z. Shen, *MoBiNet: A Mobile Binary Network for Image Classification*, in WACV 2020. wacv20

Zhiqiang Shen, Honghui Shi, Jiahui Yu, **Hai Phan**, Rogerio Feris, Liangliang Cao, Ding Liu, Xinchao Wang, Thomas Huang, Marios Savvides. Improving Object Detection from Scratch via Gated Feature Reuse 30th British Machine Vision Conference (BMVC), 2019. bmvc2019

An T. Duong, **Hai T. Phan**, Nam Do - Hoang Le, Son T. Tran. *Hierarchical Approach for Handwritten Digits Recognition Using Sparse Auto-encoder*s. In Springer Conference of Advanced Soft Computing 2014. springer

Hai T. Phan, An T. Duong, Nam Do - Hoang Le, Thai Son Tran . *Hierarchical Sparse Auto-encoder Using Linear Regression-based Feature in Clustering for Handwritten Digit Recognition.* In 8th International Symposium on Image and Signal Processing and Analysis (ISPA) - 2013. (**Oral Presentation**) ieee