

# HAI PHAN

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PhD Student ◇ Computer Science ◇ Auburn University, AL

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## EDUCATION

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**Auburn University, AL, USA** (Expected Graduation: **May 2023**) *May 2021 - Present*  
PhD student, Computer Science and Software Engineering

**Carnegie Mellon University (CMU), Pittsburgh, PA, USA** *January 2019 - May 2021*  
Former PhD student, Electrical and Computer Engineering (ECE)

**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 - 2015*  
Bachelor of Science, Advanced Program In Computer Science (**GPA: 3.61 / 4.0**)  
Thesis: Developing Smart Environment with VR and AR. (Mark: 4.0/4.0)

## TECHNICAL STRENGTHS

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

## WORK EXPERIENCE

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

Proposing a novel Recommendation System to enhance search capabilities within billions of items (Will update the details soon after the internship).

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

Proposing a novel 3D relightable models to apply different lighting effects on human face in 3D world. The model can create very realistic relit images which can achieve a significant low pixel value error rates of **10** with original images.

Languages/Technical usage: Python, Pytorch, Pytorch3D, Internal Frameworks

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

Working on new cutting-edge Explainable AI (XAI) techniques for making face matching interpretable and improving 11% top-1 accuracy of Out-of-Distribution face (e.g. masked faces, profile faces, sunglasses, etc.)

**Cylab biometrics, Carnegie Mellon University** Jan, 2019 - May, 2021  
*Research Associate*

- **Efficient deep learning for mobile devices:** Researched and developed facial recognition on devices (iOS/Android /JetsonTX/Xavier) (CMU face detection and matching C++ SDK). Improved the speed of inference **8×** in GPU and achieved **8-10 fps** on iPhone 7, **125 fps** and **20 fps** on Xavier GPU and CPU respectively.

Languages/Technical usage: C++, Python, Pytorch, Caffe, MXNet, Objective-C, OpenCV

**Cylab biometrics, Carnegie Mellon University** June, 2017 - June, 2018  
*Research Associate*

- Developed and maintained CMU facial recognition C++ SDKs, delivering software libraries to some agencies.

- **3D Face Pose Estimation:** Researched and developed 3D facial landmarking for facial alignment algorithm. To wrap 3D face, a 3D Thin Plate Spline (TPS) Transformers are implemented by estimating parameters through deep neural networks. 3D facial data on 300W-LP, AFLW, and AFLW2000-3D are manually generated for 3D training. The proposed method outperformed previous methods when achieved Normalized Mean Error of **3%**.  
Languages/Technical usage: C++, Python, Caffe, OpenCV, Open GL.

**Axon AI, Taser/Axon International**  
*Research Engineer*

Jan, 2017

- **Machine Vision:** Developed real-time correlation filter object tracking C++ SDK, following movement of people/objects. Achieved the speed of **30 fps** on iPhone 5,6 with very high accuracy.  
Languages/Technical usage: C++, Objective-C, OpenCV.

**Fossil**  
*Research Engineer*

Jan, 2016 - Dec, 2016

- **Video-based biometric signal processing:** Developed non-intrusive heart rate estimation algorithm in C++ SDK using face/finger video recorded by an ordinary camera.  
Languages/Technical usage: C++, Objective-C, OpenCV.

**Misfit Wearables**  
*Software Engineer*

May, 2014 - 2016

- Developed iOS Misfit app for millions of users worldwide.  
Languages/Technical usage: BLE, Objective-C.
- **Data sensor streaming** Developed a API to streaming data to record human activities. Calibration Data are obtained through many sensors such as gyroscope, Accelerometer, and Magnetometer. The streaming process can last each to **16** hours and data are pushed on server through a Web API. In addition, stream data is used to create 3D human body simulation in the sport for research.  
Languages/Technical usage: C++, BLE, Objective-C, OpenCV, OpenGL.

## ACTIVITIES

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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

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Travel award, CVPR 2022.

June, 2022

EPSCoR graduate research scholar award **News** (\$25,000).

May, 2022

Woltoz PhD Fellowship adward (\$24,000)

May, 2021

## PUBLICATIONS

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**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-encoders*. 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](#)