

**Research Interests** Edge-AI for Healthcare and Wellbeing, Intelligent Cyber-Physical Systems, Mobile and Wearable Systems, Quantum-based Human Sensing, and Embedded Operating Systems.

**Education** *DPhil (Ph.D.) candidate in Computer Science,*  
**University of Oxford**, Oxford, United Kingdom  
Advisors: Prof. Niki Trigoni, Prof. Andrew Markham, and Prof. Tam Vu  
Duration: 2020 - 12/2022 (Expected)

*Ph.D. student in Computer Science,*  
**University of Colorado Boulder (CU Boulder)**, Colorado, United States  
Advisor: Prof. Tam Vu  
Duration: 2018 - 2020 (Transferred to Oxford)

*M.Sc. in Computer Science,*  
**Korea Advanced Institute of Science and Technology (KAIST)**, Daejeon, South Korea  
Advisor: Prof. Daeyoung Kim  
Duration: 2016 - 2018

*B.Eng. in Computer Engineering*  
**Vietnam National University - Ho Chi Minh city University of Technology (HCMUT)**, VN  
Advisor: Dr. Anh Pham and M.E. Hieu Bui  
Duration: 2010 - 2015, Honor Program (Top 1%).

<b>Awards &amp; Recognitions</b>	<i>University of Oxford DPhil Scholarship</i>	2020-2023
	<i>Communication of the ACM Research Highlight</i>	2021
	<i>ACM SIGMOBILE Research Highlight</i>	2020
	<i>ACM GetMobile Research Highlight</i>	2019
	<i>Best Paper Award, ACM MobiCom 2019</i>	2019
	<i>KAIST Graduate Scholarship, KAIST, South Korea</i>	2016-2018
	<i>HCMUT Silver graduation medal, HCMUT, Vietnam.</i>	2015
	<i>HCMUT Excellence Scholarship, HCMUT, Vietnam.</i>	2011-2015
	<i>Odon Vallet's Fellowship, Vietnam.</i>	2009-2011

**Publications** ■ *Under review*

- A Large-Scale Study of a Sleep Tracking and Improving Device with Closed-loop and Personalized Real-time Acoustic Stimulation.  
Under review for **Science Translational Medicine**  
A. Nguyen, G. Pogoncheff, B. Dong, N. Bui, H. Truong, **N. Pham**, L. Nguyen, S. Ha, T. Vu.

■ *Conferences*

1. PROS: an Efficient Pattern-Driven Compressive Sensing Framework for Low-Power Biopotential-based Wearables with On-chip Intelligence.  
**Nhat Pham**, Hong Jia, Minh Tran, Tuan Dinh, Nam Bui, Young Kwon, Dong Ma, Phuc Nguyen, Cecilia Mascolo, and Tam Vu.  
**ACM MobiCom 2022** - The 28th ACM Intl' Conf. on Mobile Computing and Networking.  
(AR<sup>1</sup>: 17.8%)
2. IoTree: A Battery-free Wearable System with Biocompatible Sensors for Continuous Tree Health Monitoring.  
Tuan Dang, Trung Tran, Khang Nguyen, Tien Pham, **Nhat Pham**, Tam Vu, and Phuc Nguyen.  
**ACM MobiCom 2022** - The 28th ACM Intl' Conf. on Mobile Computing and Networking.  
(AR: 17.8%)

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<sup>1</sup>Acceptance Ratio

3. DroneScale: Drone Load Estimation Via Remote Passive RF Sensing.  
Phuc Nguyen, Vimal Kakaraparthi, Nam Bui, Nikshep Umamahesh, **Nhat Pham**, Hoang Truong, Yeswanth Guddeti, Dinesh Bharadia, Eric Frew, Richard Han, Daniel Massey, Tam Vu.  
**ACM SenSys 2020** - The 18th ACM Intl' Conf. on Embedded Networked Sensor Systems. (AR: 20.7%)
4. WAKE: A Behind-the-ear Wearable System for Microsleep Detection.  
**Nhat Pham**, Tuan Dinh, Zohreh Raghebi, Taeho Kim, Nam Bui, Phuc Nguyen, Hoang Truong, Farnoush Banaei-Kashani, Ann Halbower, Thang Dinh, and Tam Vu.  
**ACM MobiSys 2020** - The 18th ACM Intl' Conf. on Mobile Systems, Applications, and Services. (AR: 19.4%)
5. Painometry: Wearable and Objective Quantification System for Acute Postoperative Pain.  
H. Truong, N. Bui, Z. Raghebi, M. Ceko, **N. Pham**, P. Nguyen, A. Nguyen, T. Kim, K. Siegfried, E. Stene, T. Tvrđy, L. Weinman, T. Payne, D. Burke, T. Dinh, S. D'Mello, F. Banaei-Kashani, T. Wager, P. Goldstein, and T. Vu.  
**ACM MobiSys 2020** - The 18th ACM Intl' Conf. on Mobile Systems, Applications, and Services. (AR: 19.4%)
6. eBP: A Wearable System For Frequent and Comfortable Blood Pressure Monitoring.  
Nam Bui, **Nhat Pham**, Jessica Barnitz, Phuc Nguyen, Hoang Truong, Taeho Kim, Anh Nguyen, Zhanan Zou, Nicholas Farrow, J. Xiao, Robin Deterding, Thang Dinh and Tam Vu.  
**ACM MobiCom 2019** - The 25th ACM Intl' Conf. on Mobile Computing and Networking. (AR: 16.1%)  
**Best Paper Award, ACM SIGMOBILE Research Highlight 2020, ACM CACM, GetMobile Research Highlights 2021, 2019**
7. MSHCS-MAC: A MAC protocol for Multi-hop cognitive radio networks based on Slow Hopping and Cooperative Sensing approach.  
**Nhat Pham**, Kiwoong Kwon, and Daeyoung Kim.  
**IEEE ISCC 2018** - The 23th IEEE Symposium on Computers and Communications, Brazil, June 2018.
8. OIiot-OpenCity: Open Standard Interoperable Smart City Platform.  
Yalew Tolcha, Minh Nguyen, Jawook Byun, Kiwoong Kwon, Jiyong Han, Wondeuk Yoon, Nakyoung Lee, Hyunseob Kim, **Nhat Pham**, and Daeyoung Kim.  
**IEEE ISC2 2018** - IEEE Intl' Smart Cities Conference, Kansas City, Missouri, USA, Sep. 2018
9. IsV2C: An Integrated Road Traffic-Network-Cloud Simulator for V2C Connected Car Services.  
Heejae Kim, Jiyong Han, Seonghwan Kim, Jisoo Choi, Dongsik Yoon, Minsu Jeon, Eunjoo Yang, **Nhat Pham**, Sungpil Woo, Daeyoung Kim and Chan-Hyun Youn.  
**IEEE SCC 2017** - The 14th IEEE Intl' Conf. on Services Computing, Hawaii, USA, Jun. 2017.
10. GS1 Global Smart Parking System: One Architecture to Unify Them All.  
**Nhat Pham**, Muhammad Hassan, Hoang Minh Nguyen and Daeyoung Kim.  
**IEEE SCC 2017** - The 14th IEEE Intl' Conf. on Services Computing, Hawaii, USA, Jun. 2017.
11. Towards an Open Framework for Home Automation Development.  
**Dang-Nhat Pham-Huu**, Van-Hien Nguyen, Van-Anh Trinh, Van-Hieu Bui, and Hoang-Anh Pham.  
**IEEE ACOMP 2015** - The 9th Intl' Conf. on Advanced Computing and Applications., Ho Chi Minh City, Vietnam, Nov. 2015.

#### ■ Journals

12. Detection of Microsleep Events with a Behind-the-ear Wearable System.  
**IEEE TMC** - IEEE Transactions on Mobile Computing (IF: 5.577, preprint).  
**Nhat Pham**, Tuan Dinh, Taeho Kim, Zohreh Raghebi, Nam Bui, Hoang Truong, Tuan Nguyen, Farnoush Banaei-Kashani, Ann Halbower, Thang Dinh, Phuc Nguyen, and Tam Vu.
13. eBP: Frequent and comfortable blood pressure monitoring from inside human's ears.  
**ACM CACM** - Communications of the ACM, Aug. 2021. (**Research Highlight**)  
Nam Bui, **Nhat Pham**, Jessica Barnitz, Phuc Nguyen, Hoang Truong, Taeho Kim, Anh Nguyen, Zhanan Zou, Nicholas Farrow, J. Xiao, Robin Deterding, Thang Dinh and Tam Vu.

14. eBP: Frequent and comfortable blood pressure monitoring from inside human's ears.  
**ACM GetMobile** - Mobile Computing and Communications, Dec. 2019. **(Research Highlight)**  
Nam Bui, **Nhat Pham**, Hoang Truong, Phuc Nguyen, J. Xiao, Robin Deterding, and Tam Vu.
15. Epileptic Seizure Detection and Experimental Treatment: A Review.  
Taeho Kim, Phuc Nguyen, **Nhat Pham**, Nam Bui, Hoang Truong, Sangtae Ha, Tam Vu  
**Frontiers in Neurology**, Jul. 2020.
16. MSHCS-MAC: A MAC for Multi-hop Cognitive Radio Networks Based on Slow Hopping and Cooperative Sensing Approach with Time Synchronization.  
Won-Deuk Yoon, **Nhat Pham**, Ki-Woong Kwon, Jang-Gwan Im, Dae-Young Kim  
**KICS** - The Journal of Korean Institute of Communications and Information Sciences, Nov. 2018

#### ■ *Invited Papers, Workshops and Demos*

17. Invited Paper: Hierarchical Activity Recognition with Smartwatch IMU.  
Ada Alevizaki, **Nhat Pham**, and Niki Trigoni.  
**ACM ICDCN 2023** - 24th International Conference on Distributed Computing and Networking.
18. Demo: IoTree - A Battery-free Wearable System with Biocompatible Sensors for Continuous Tree Health Monitoring.  
Tuan Dang, Trung Tran, Khang Nguyen, Tien Pham, **Nhat Pham**, Tam Vu, and Phuc Nguyen.  
**ACM MobiCom 2022** - The 28th ACM Intl' Conf. on Mobile Computing and Networking.
19. Demo: Earable - An Ear-Worn Biosignal Sensing Platform for Cognitive State Monitoring and Human-Computer Interaction.  
**Nhat Pham**, Taeho Kim, Frederick M Thayer, Anh Nguyen, and Tam Vu.  
**ACM MobiSys 2019** - The 17th ACM Intl' Conf. on Mobile Systems, Applications, and Services.
20. GS1 Global Smart Parking System: Integrated architecture that provides interoperability of global systems.  
**Nhat Pham**, Sungpil Woo, Muhammad Hassan, Hoang Minh Nguyen and Daeyoung Kim.  
**KCC 2017** - Korea Computer Congress, Jeju, Korea, Jul. 2017.

## Patents

#### ■ *International Patents*

1. Tam Vu, Robin Deterding, Ann Halbower, Farnoush Banaei-Kashani, **Nhat Pham**, and Nam Bui, "A Wearable System for Behind-the-Ear Sensing and Stimulation", PCT/US2020/031712.
2. Tam Vu, Robin Deterding, Nam Bui, and **Nhat Pham**, "Health Sticker: A Modular Adhesive Platform Monitoring Vital Signals", PCT/US2020/015961.

#### ■ *Provisional Applications*

3. VP Nguyen, Tam Vu, Tuan Dang, Tien Pham, and **Nhat Pham** "Method and apparatus for continuous plant health monitoring", Provisional Application No.: 63/412,753.
4. Tam Vu, Robin Deterding, Farnoush Banaei-Kashani, **Nhat Pham**, and Nam Bui, "A Wearable System for Intra-Ear Sensing and Stimulating", Provisional Application No.: 62/900,187.
5. Tam Vu, Robin Deterding, Nam Bui, and **Nhat Pham**, "eBP: A Wearable System For Frequent and Comfortable Blood Pressure Monitoring From User's Ear", Provisional Application No.: 62/900,182.
6. Tam Vu, Robin Deterding, Nam Bui, and **Nhat Pham**, "Breathing Gripper: A Miniature Breath Monitoring Device", Provisional Application No.: 62/968,369.

## Experience

#### ■ *Research Experience*

- **Research Associate**, University of Oxford. 10/2022 - present
- **Graduate Research Assistant**, University of Colorado Boulder, USA. 2018-2020
- **Researcher**, Real-time and embedded systems lab, KAIST. 2018

#### ■ *Teaching Experience*

- **Digital Systems**, Teaching Assistant/Tutor (8 students), Oxford, UK. Hilary & Trinity 2021
- **Concurrent Programming**, Tutor (6 students), Oxford, UK. Hilary & Trinity 2021
- **Linear Algebra**, Tutor (4 students), Oxford, UK. Michaelmas 2020 & Trinity 2021

- **Data and computer communication**, Instructor (30-40 students), HCMUT, Vietnam. Fall 2015
- **Embedded systems**, Instructor (~20 students), HCMUT, Vietnam. Spring 2015

#### ■ *Mentoring Experience*

- **Tuan Tran**, Research Mentor, PhD student, CU Boulder. Fall 2022 - present
- **Ada Alevizaki**, Research Mentor, DPhil student, University of Oxford. Hilary 2022 - present
- **Leopold Beuken**, Peer-mentor, First year PhD student, CU Boulder. Fall 2019
- **Amit Roy**, Research Mentor, Master student, CU Boulder. Fall 2019

#### ■ *Work Experience*

- **Technical Consultant**, Earable Inc., Colorado, USA. 10/2020 - present
- **Embedded Software Engineer**, FPT Software, Ho Chi Minh City, Vietnam. 3/2015 - 7/2015
- **Embedded Software Intern**, Applied Micro Circuits Corporation, Ho Chi Minh City, Vietnam. 7/2014 - 9/2014
- **Kernel Maintainer**, RIOT-OS (The friendly Operating System for the Internet of Things). 2014 - 2015
- **Student participant**, 2014 Intel Cup Undergraduate Electronic Design Contest, Shanghai Jiao Tong University, Shanghai, China. 2014

## Services

#### ■ *Technical Shadow Program Committee*

- ACM SenSys 2022.

#### ■ *Student Reviewer*

- ACM MobiCom 2019-2023.
- ACM MobiSys 2021-2022.
- ACM SenSys 2019-2020.
- ACM HotMobile 2021.
- IEEE Transactions on Biomedical Circuits and Systems 2021.
- IEEE SECON 2020.
- IEEE/ACM CHASE 2020.

## References

Professor **Niki Trigoni**,  
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