# Hoàng-Ân Lê, PhD

## Personal Information

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| Gender-YOB: | Male-1990 | Nationality | Vietnamese |
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## Education

**2016–2021** Doctor of Philosophy in Computer Science

*University of Amsterdam*, the Netherlands
Computer Vision lab, Informatics Institute, Faculty of Science
- funded by the TrimBot2020 project, EU Horizon program
- **Advisor** Prof. Theo Gevers and A/Prof. Thomas Mensink
- **Dissertation** *"Outdoor Image Understanding from Multiple Vision Modalities"*

**2012–2015** Master of Science in Engineering

Diplôme d'Ingénieur, *Télécom ParisTech*, France
- international program, all classes in English

**2012–2013** *John von Neumann institute*, Vietnam National University, Vietnam
**2013–2015** *EURECOM institute, Campus SophiaTech*, Télécom ParisTech, France
- **GPA** 4.00/4.00 | **Eiffel scholarship** by Campus France
- **Semester project** *"Person-based Video Hyperlinking"* | **Advisor** A/Prof. Benoit Huet
- **Graduation project** *"Multi-Camera Matching and Point Clouds Registration for 3D Immersive Visual Systems"* | **Advisor** Prof. Minh Do, UIUC, USA

**2008–2012** Bachelor of Science

*University of Science*, Vietnam National University, Ho Chi Minh city, Vietnam
Advanced Program in Computer Science (APCS), all classes in English
- **GPA** 3.96/4.00
- **Graduation project** *"Natural User Interface for Smart Environment"* | **Advisor** A/Prof. Minh-Triet Tran

## Projects

**Feb 2024–presence** Multi-Task Learning for Super-Resolution and Semantic Segmentation

Postdoctoral researcher—*Centre National d'Études Spatiales* (CNES), Toulouse, France
OBELIX team—IRISA institute | **Principal Investigator** A/Prof. Minh-Tan Pham
- Leveraging self-supervised and multi-task learning for super-resolution and semantic segmentation

**Feb 2022–Jan 2024** Robust Multitask Learning via Mutual Knowledge Distillation for Earth Observation

Postdoctoral researcher—*University of South Brittany*, Vannes, France
OBELIX team—IRISA institute | **Principal Investigator** A/Prof. Minh-Tan Pham
- Multitask Learning with Contrastive Learning

**Jan 2021–Nov 2021** Offshore Wind Farm Surveys Of Marine Megafauna

Postdoctoral researcher—*France Énergies Marines*, Brest, France
OBELIX team—IRISA institute | **Principal Investigator** Prof. Sébastien Lefèvre
- Deep learning based Multimodal Analysis

**Oct 2020–Dec 2020** Positive Plant-Plant interaction and spatial Patterns in Pyrenean Post-mine tailings

Visiting researcher—*University of South Brittany*, Vannes, France
OBELIX team—IRISA institute | **Principal Investigator** Prof. Sébastien Lefèvre
- Digital Terrain Model extraction

| Apr 2016–Dec 2019 | TrimBot2020 funded by the EU Horizon2020 program |
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**Doctoral researcher**—*University of Amsterdam*, Amsterdam, the Netherlands
Computer Vision lab, Informatics Institute | **Principal Investigator** Prof. Theo Gevers
- vision-based 3D data analysis and scene understanding work-package.

| Mar 2015–Sep 2015 | Obiwan project: 3D Immersive Visual System |
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**Master intern**—*University of Illinois at Urbana-Champagne*, USA
CSL and Personify Inc. | **Supervisor** Prof. Minh Do and Prof Sanjay Patel
- study and implement a 3D immersive system using Intel RealSense R200 and Oculus Rift DK2.

| Jun 2014–Sep 2014 | LinkedTV project: Multimedia and Video retrieval |
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**Master intern**—*EURECOM institute*, Sophia Antipolis, France
Multimedia track | **Supervisor** Prof. Benoît Huet
- search and hyperlinking task for MediaEval 2014

## ACADEMIC EXPERIENCES

### SUPERVISION

2024    Anh-Kiet Duong, *Université de Limoges*,
- Towards Privacy-Preserving Federated Learning Across Multiple Datasets

2021    Wei-Hsin Tseng, *MCDE, Université Bretagne Sud*,
- Contrastive Learning for Localizing Elevation Data

### TEACHING ASSISTANCE

University of Amsterdam, the Netherlands

| 2016–2020 | Computer Vision 1 |
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| 2016–2017 | Computer Vision 2 |

*Lecturer* Prof. Theo Gevers

## PUBLICATIONS

### JOURNALS

[J5] AK. Duong, T.V. La, **H.-Â. Lê**, M.T. Pham, "FedShip: Federated Learning for Ship Detection from Multi-Source Satellite Images", under submission to *IEEE Geoscience and Remote Sensing Letters* (GRSL), 2024

[J4] **H.-Â. Lê**, H. Zhang, M.T. Pham, S. Lefèvre, "Mutual Guidance Meets Supervised Contrastive Learning: Vehicle Detection in Remote Sensing Images", in *Remote Sensing*, 2022.

[J3] **H.-Â. Lê**, F. Guiotte, M.T. Pham, S. Lefèvre, T. Corpetti, "Learning Digital Terrain Models From Point Clouds: ALS2DTM Dataset and Rasterization-Based GAN", in *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing* (JSTARS), 2022.

[J2] **H.-Â. Lê**, T. Nimbhorkar, T. Mensink, A. Baslamisli, S. Karaoglu, T. Gevers, "Unsupervised Generation of Optical Flow Datasets", in *Computer Vision and Image Understanding* (CVIU), 2021.

[J1] A. Baslamisli, P. Das, **H.-Â. Lê**, S. Karaoglu, T. Gevers, "ShadingNet: Image Intrinsics by Fine-Grained Shading Decomposition", in *International Journal of Computer Vision* (IJCV), 2020.

### INTERNATIONAL CONFERENCES

[C17] **H.-Â. Lê**, M.T. Pham, "Box for Mask and Mask for Box: weak losses for multi-task partially supervised learning", accepted for publication in *British Machine Vision Conference* (BMVC), 2024.

[C16] A.K. Duong, **H.-Â. Lê**, M.T. Pham, "Leveraging feature communication in federated learning for remote sensing image classification", in *IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*, 2024.

[C15] **H.-Â. Lê**, M.T. Pham, "Leveraging knowledge distillation for partial multi-task learning from multiple remote sensing datasets", in *IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*, 2024.

[C14] **H.-Â. Lê**, M.T. Pham, "Data exploitation: Multi-task learning of object detection and semantic segmentation on partially annotated data", in *British Machine Vision Conference (BMVC)*, 2023.

[C13] **H.-Â. Lê**, M.T. Pham, "Knowledge Distillation for Object Detection: from generic to remote sensing datasets", in *IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*, 2023

[C12] W.-H. Tseng, **H.-Â. Lê**, A. Boulch, S. Lefèvre, D. Tiede, "CroCo: Cross-Modal Contrastive learning for localization of Earth Observation data", in *ISPRS Annals of the Photogrammetry, Remote Sensing and Spatial Information Sciences (ISPRS)*, 2022

[C11] A.A. Osio, **H.-Â. Lê**, S. Ayugi, F. Onyango, P. Odwe, S. Lefèvre, "Detection of Degraded Acacia tree species using deep neural networks on UAV drone imagery", in *ISPRS Annals of the Photogrammetry, Remote Sensing and Spatial Information Sciences (ISPRS)*, 2022

[C10] **H.-Â. Lê**, P. Das, T. Mensink, T. Gevers, "EDEN: Multimodal Synthetic Dataset of Enclosed GarDEN Scenes", in *CVF Winter Conference of Applications on Computer Vision (WACV)*, 2021.

[C9] J. Han, S. Karaoglu, **H.-Â. Lê**, T. Gevers, "Object features and face detection performance: Analyses with 3D-rendered synthetic data", in *International Conference on Pattern Recognition (ICPR)*, 2020.

[C8] **H.-Â. Lê**, P. Das, T. Mensink, T. Gevers, "Novel view synthesis from single images via point cloud transformation", in *British Machine Vision Conference (BMVC)*, 2020.

[C7] **H.-Â. Lê**, A. Baslamisli, T. Mensink, T. Gevers, "Three for one and one for three: Flow, Segmentation, and Surface Normals", in *British Machine Vision Conference (BMVC)*, 2018 **Oral** (accept. rate 4.3%).

[C6] A. Baslamisli, TT. Groenestege, P. Das, **H.-Â. Lê**, S. Karaoglu, T. Gevers, "Joint Learning of Intrinsic Images and Semantic Segmentation", in *European Conference in Computer Vision (ECCV)*, 2018.

[C5] A. Baslamisli, **H.-Â. Lê**, T. Gevers, "CNN based Learning using Reflection and Retinex Models for Intrinsic Image Decomposition", in *Computer Vision and Pattern Recognition (CVPR)*, 2018.

[C4] **H.-Â. Lê**, K.N.C. Mac, T.A. Pham, V.T. Nguyen, M.T. Tran, "Multimodal Smart Interactive Presentation System", in *Proceedings of the 15th International Conference on Human-Computer Interaction (HCII)*, 2013.

[C3] **H.-Â. Lê**, K.N.C. Mac, T.A. Pham, M.T. Tran, "Realtime Pointing Gesture Recognition and Applications in Multi-user Interaction", in *Proceedings of the 5th Asian Conference on Intelligent Information and Database Systems (ACIIDS)*, 2013.

[C2] **H.-Â. Lê**, K.N.C. Mac, T.A. Pham, V.T. Nguyen, M.T. Tran, AD Duong, "SIM - Smart Interactive Map with Pointing Gestures", in *Proceedings of the 4th International Conference on Intelligent Human-Machine Systems and Cybernetics, IEEE Computer Society's Conference (IHMSC)*, 2012.

[C1] **H.-Â. Lê**, M.T. Doan, M.T. Tran, "Webcam-based Laser Dot Detection Technique in Computer Remote Control", in *Proceedings of the 3th International Conference on Theories and Applications of Computer Science: Special issue of The Journal of Science and Technology (ICTACS)*, 2010.

## WORKSHOPS

[W5] **H.-Â. Lê**, M.T. Pham, "Self-Training and Multi-Task Learning for Limited Data: Evaluation Study on Object Detection, in *IEEE International Conference on Computer Vision Workshop (ICCVw)*, 2023

[W4] R. Tylecek, T. Sattler, **H.-Â. Lê**, T. Brox, M. Pollefeys, RB. Fisher, T. Gevers, "The Second Workshop on 3D Reconstruction Meets Semantics: Challenge Results Discussion", in *European Conference in Computer Vision Workshop (ECCVw)*, 2018.

[W3]  I. Pratikakis, MA. Savelonas, F. Arnaoutoglou, G. Ioannakis, A. Koutsoudis, T. Theoharis, M.T. Tran, V.T. Nguyen, VK. Pham, HD. Nguyen, **H.-Â. Lê**, BH. Tran, QH. To, MB. Truong, TV. Phan, MD. Nguyen, T.A. Than, K.N.C. Mac, MN. Do, A.D. Duong, T. Furuya, R. Ohbuchi, M. Aono, S. Tashiro, D. Pickup, X. Sun, PL. Rosin, RR. Martin, "Partial Shape Queries for 3D Object Retrieval", in *Eurographics 2016 Workshop on 3D Object Retrieval*, 2016.

[W2]  M.Eskevich, Q.M. Bui, **H.-Â. Lê**, B. Huet, "Exploring Video Hyperlinking in Broadcast Media", in *Proceedings of the Third Edition Workshop on Speech, Language and Audio in Multimedia* (SLAM), 2015.

[W1]  **H.-Â. Lê**, Q.M. Bui, B. Huet, B. Cervenkova, J. Bouchner, E. Apostolidis, F. Markatopoulou, A. Pournaras, V. Mezaris, D. Stein, S. Eickeler, M. Stadtschnitzer "LinkedTV at MediaEval 2014 Search and Hyperlinking Task", in *Working Notes Proceedings of the MediaEval 2014 Workshop*, 2014.