

Huy Hieu Pham | Curriculum Vitæ

Researcher in Computer Vision, Machine Learning/Deep Learning

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OBJECTIVE

Doing research on Computer Vision & Artificial Intelligence, with a focus on the design, implementation and deployment of the Image & Video Analysis systems based on Machine Learning/Deep Learning models.

EDUCATION

- 2016 ÷ PRESENT **Ph.D. in Computer Science** (expected September 2019)
Toulouse Computer Science Research Institute (IRIT) - The University of Toulouse & Cerema Research Center, France.
Dissertation: “*Human Action Recognition in RGB-D Videos based on Deep Neural Networks*”.
[| Detailed description](#)
- 2010 ÷ 2015 **Bachelor of Engineering in Industrial Informatics**
Center for Training of Excellent Students (CTES), Hanoi University of Science and Technology (HUST), Vietnam.
Thesis: “*Obstacle Detection in Indoor Environment for Visually Impaired People*”, done at the Université Grenoble Alpes, France with the maximum score of A+.
[| Detailed description](#)

RESEARCH INTERESTS

My research interests lie in the intersection of Computer Vision, Human-Computer Interaction (HCI) and Machine Learning. In particular, I focus on designing and optimizing high-performance Deep Learning architectures for Activity Recognition, Object Detection, Image Segmentation and Scene Understanding.

WORK EXPERIENCE

- OCT. 2016 ÷
CURRENT **Ph.D. Fellow** at the Toulouse Computer Science Research Institute (IRIT) - The University of Toulouse & Cerema Research Center, Toulouse, France.
• Conduct research on video-based human action recognition using deep learning networks.
• Proposed new 3D motion representations and deep learning frameworks for action analysis.
• Techniques & Tools: CNNs, Python, Keras/TensorFlow, Kinect sensor, RGB-D data.
- NOV. ÷ DEC.
2017 **Visiting Ph.D. Student** at the Applied Artificial Intelligence Research Group, University Carlos III of Madrid, Madrid, Spain.
• Designed and optimized very deep CNNs for image recognition tasks.
• Techniques & Tools: Inception-ResNet-(v1,v2), DenseNet, Python, Keras/TensorFlow, 3D data.
- NOV. 2014÷
MAY 2015 **Research Intern** in the AIR-COBOT project, led by AIRBUS Group and ICA Research Institute, Albi, France.
• Analyzed 3D point cloud for detection and characterization of defects on airplane surface.
• Techniques & Tools: Object detection, 3D point cloud processing, PCL/C++, OpenCV/C++.
- JULY ÷ OCT.
2015 **Research Engineer** at the MICA International Research Center, Hanoi, Vietnam.
• Conducted research on object detection, 3D video analysis, and scene understanding.
• Techniques & Tools: Object detection, RGB-D videos analysis, OpenCV/C++, PCL/C++.
- FEB. ÷ JUNE
2015 **Research Intern** at the AGIM Laboratory, Université Grenoble Alpes, Grenoble, France.
• Developed an obstacle detection and warning system for visually impaired people based on electrode matrix and mobile Kinect.
• Techniques & Tools: 3D object segmentation, OpenCV/C++, PCL/C++, Kinect, RGB-D data.

SCHOLARSHIPS AND AWARDS

- JUL. 2018 **Silver Medal** (top 3% accuracy) for the TGS Salt Segmentation Challenge, Kaggle competition.
SEP. 2016 **Ph.D. Scholarship** for an outstanding candidate from the Cerema Research Center, France.
JAN. 2015 **Doctoral Travel Scholarship** from L'Université Fédérale Toulouse Midi-Pyrénées and Écoles des Docteurs, Toulouse, France.
SEP. 2015 **Research Internship Scholarship** from the ICA Research Institute, France.
JAN. 2015 **Graduate Internship Scholarship** from the Université Grenoble Alpes, France.

LANGUAGES

Native Vietnamese speaker and fluent in both French and English.

TECHNICAL SKILLS

COMPUTER VISION:	Experience with detection, tracking, classification & segmentation algorithms.
DEEP LEARNING:	Familiarity with state-of-the-art CNN architectures (e.g., VGG-Net, Inception, ResNet, Inception-ResNet-(v1,v2), DenseNet, Xception, NAS-Net, AutoML, etc.), LSTM-RNNs, and Temporal Convolutional Networks (TCN).
PROGRAMMING LANGUAGES:	Python, C/C++, MATLAB, and \LaTeX .
LIBRARIES/Frameworks:	Keras/TensorFlow, OpenCV, NumPy, SciPy, Pandas, Scikit-learn, and Matplotlib.

SCIENTIFIC PUBLICATIONS

Journal publications

- [J-7] **Huy-Hieu Pham**, Houssam Salmane, Louahdi Khoudour, Alain Crouzil, Pablo Zegers, Sergio A. Velastin. *"Spatio-Temporal Image Representation of 3D Skeletal Movements for View-Invariant Action Recognition with Deep Convolutional Neural Networks"* – Special Issue "Deep Learning -Based Image Sensors", Intelligent Sensors | [Accepted](#)
- [J-6] **Huy-Hieu Pham**, Houssam Salmane, Louahdi Khoudour, Alain Crouzil, Pablo Zegers, Sergio A. Velastin. *"Skeletal Movement to Enhanced Color Map: A Novel Representation for RGB-D based 3D Human Action Recognition with Densely Connected Convolutional Networks"* – Pattern Recognition Letters (**PRLs 2018**) | [Decision pending](#)
- [J-5] **Huy-Hieu Pham**, Louahdi Khoudour, Alain Crouzil, Pablo Zegers, Sergio A. Velastin. *"Learning to Recognize 3D Human Action from A New Skeleton-based Representation Using Deep Convolutional Neural Networks"* – The IET Computer Vision Journal (**IET 2018**) | [Accepted](#)
- [J-4] **Huy-Hieu Pham**, Louahdi Khoudour, Alain Crouzil, Pablo Zegers, Sergio A. Velastin. *"Exploiting Deep Residual Networks for Human Action Recognition from Skeletal Data"* – The Computer Vision and Image Understanding Journal, Vol. 170 (51-66), 2018 (**CVIU 2018**) | [.pdf](#)
- [J-3] Igor Jovancevic, **Huy-Hieu Pham**, Jean-José Orteu, Rémi Gilblas, Jacques Harvent, Xavier Maurice, Ludovic Brèthes. *"3D Point Cloud Analysis for Detection and Characterization of Defects on Airplane Exterior Surface"* – Journal of Nondestructive Evaluation, Vol. 36 (74), 2017 (**JNE 2017**) | [.pdf](#)
- [J-2] Igor Jovancevic, **Huy-Hieu Pham**, Jean-José Orteu, Rémi Gilblas, Jacques Harvent, Xavier Maurice, Ludovic Brèthes. *"Détection et Caractérisation de Défauts de Surface par Analyse des Nuages de Points 3D Fournis par Un Scanner"* – La revue Instrumentation, Mesure, Métrologie, Vol. 16 (1-4), 2017 (**I2M 2017**) | [.pdf](#)
- [J-1] **Huy-Hieu Pham**, Thi Lan Le, and Nicolas Vuillerme. *"Real-Time Obstacle Detection System in Indoor Environment for Visually Impaired Sensor Using Microsoft Kinect"* – The Journal of Sensor, Vol. 11 (1-13), 2016 (**SCIE 2016**) | [.pdf](#)

Peer-reviewed conference publications

- [C-2] **Huy-Hieu Pham**, Louahdi Khoudour, Alain Crouzil, Pablo Zegers, Sergio A. Velastin. *“Skeleton to Color Map: A Novel Representation for 3D Action Recognition with Inception Residual Networks”* – The 25th IEEE International Conference on Image Processing 7-10 October, 2018, Athens, Greece ([ICIP 2018](#)) | [.pdf](#)
- [C-1] **Huy-Hieu Pham**, Louahdi Khoudour, Alain Crouzil, Pablo Zegers, Sergio A. Velastin. *“Learning and Recognizing Human Action from Skeleton Movement with Deep Residual Neural Networks”* – The 8th International Conference of Pattern Recognition Systems, 11-13 July, 2017, Madrid, Spain ([ICPRS 2017](#)) | [.pdf](#)

Preprints

- [P-1] **Huy-Hieu Pham**, Houssam Salmane, Louahdi Khoudour, Alain Crouzil, Pablo Zegers, Sergio A. Velastin. *“Deep Learning Architectures for Video-based Human Action Recognition: Challenges, Achievements, and New Frontiers”* | [arXiv submit/2519965](#)

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REVIEW ACTIVITIES

Journal of Electronic Imaging ([JEI](#))

IET Computer Vision Journal ([IET-CVI](#))

INVITED TALKS, WORKSHOPS & SUMMER SCHOOL

- DEC. 2018 Invited speaker, *“Applied Machine Learning Days”* at the French Institute of Science and Technology for Transport, Development and Networks ([IFSTTAR](#)), Paris, France.
- NOV. 2017 Invited speaker, *“An Introduction to Deep Learning for Image and Video Interpretation”* at the University Carlos III of Madrid ([UC3M](#)), Madrid, Spain.
- JULY 2018 *“The 2nd International Summer School on Deep Learning”*, Genova, Italy.
- DEC. 2017 *“Workshop on Face, Action and Behavior Recognition”*, Télécom [ParisTech](#), Paris, France.
- JUNE 2018 *“Deep Learning Workshop”*, Toulouse Computer Science Research Institute ([IRIT](#)), Toulouse, France.

TEACHING

- FALL 2017 *“Deep Learning for Video Analysis”* at the University Carlos III of Madrid ([UC3M](#)), Spain.
- FALL 2018 *“Introduction to Programming and Algorithms in Python”* at the Paul Sabatier University ([UPS](#)), France.

SCIENTIFIC SOCIETIES

I am a member of the IEEE Computer Society and the French Information, Signal, Image et Vision Society.

REFERENCES

References available upon request.

Last updated: May 18, 2019