

# Trong N. NGUYEN

## CONTACT INFORMATION

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## SUMMARY

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I have had a passion for vision system and AI since I was a undergraduate student. I am currently a Ph.D. candidate in Computer Vision. I am looking for opportunities working on realistic projects. I am friendly, self-motivated, and independent.

## EDUCATION

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SEP 2015 TO PRESENT	<p>Ph.D. in COMPUTER SCIENCE, <b>University of Montreal</b>, Montreal, QC, Canada Dissertation: "Human gait analysis using a depth camera and mirrors" Supervisor: Prof. Jean MEUNIER <b>Project focuses on:</b></p> <ul style="list-style-type: none"><li>• Examining depth estimation in a setup of a depth camera and 2 mirrors</li><li>• Reconstructing 3D point cloud in this setup</li><li>• Estimating human walking gait normality index</li><li>• Technique: OpenCV, PCL, deep learning</li></ul>
DEC 2012 TO JAN 2015	<p>M.Sc. in COMPUTER SCIENCE, <b>The University of Danang</b>, Danang, Vietnam Thesis: "Human gait analysis using one camera" Advisor: Huu Hung HUYNH, PhD Thesis score 8.9/10 - rank 1<sup>st</sup> <b>Project focuses on:</b></p> <ul style="list-style-type: none"><li>• Feature extraction on a sequence of 2D human gait silhouettes</li><li>• Building a model of normal gait cycles</li><li>• Detecting abnormal walking gaits</li><li>• Technique: Matlab, HMM</li></ul>
SEP 2007 TO JUN 2012	<p>B.Sc. in INFORMATION TECHNOLOGY, <b>University of Science &amp; Technology</b> Thesis: "Detecting fake-folder executable files using neural network" Advisor: Huu Hung HUYNH, PhD Thesis score 9.6/10 <b>Project focuses on:</b></p> <ul style="list-style-type: none"><li>• Typical methods related to Image Processing and Machine Learning</li><li>• Designing neural network working on hand-crafted color features</li><li>• Technique: C#, OOP</li></ul>

## SCHOLARSHIPS BY UNIVERSITY OF MONTREAL

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Excellence Department of Computer Science and Operations Research  
Fall (2015, 2016, 2017, 2018), Winter (2016, 2017, 2018, 2019)

End of Doctoral Faculty of Graduate and Postdoctoral Studies  
12 months for the academic year 2018-2019

## WORK EXPERIENCE

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| JUL 2014 - AUG 2015 | Research assistant at VISION LABORATORY<br><i>University of Science and Technology (Danang, Vietnam)</i><br>Project: Vision-based hand gesture recognition<br>Developed algorithms for recognizing hand gestures in both static and dynamic forms. These methods worked on depth images and 2D silhouettes. |
| MAR 2014 - JUN 2014 | Intern at VISION LABORATORY<br><i>University of Montreal (Montreal, QC, Canada)</i><br>Project: Abnormal gait detection with one camera using HMM<br>Developed an algorithm for detecting various types of anomalous walking gaits given a sequence of side-view silhouettes.                               |

## LANGUAGES

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VIETNAMESE: Mother tongue  
ENGLISH: Fluent

## COMPUTER SKILLS

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Programming: C#, C++, Matlab, Mathematica, Python  
Technologies: Accord.NET, OpenCV, Point Cloud Library, TensorFlow, Scikit-learn

## SERVICES

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I have been an external reviewer for the following journals: IEEE Access (IEEE), Sensors (MDPI), Applied Sciences (MDPI), SN Applied Sciences (Springer), J. of Biomechanics (Elsevier).

## REFERENCES

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|-------------------------|--|
| <b>Jean Meunier</b>     | Full Professor   Vision laboratory<br>DIRO, University of Montreal (Montreal, QC, Canada)<br>Room 2387, André-Aisenstadt Building<br>Contact: <a href="mailto:meunier@iro.umontreal.ca">meunier@iro.umontreal.ca</a> |
| <b>Hoang Anh Nguyen</b> | PhD, Sr. Perception Engineer<br>Aeva Inc., Mountain View, CA, US<br>Contact: <a href="mailto:hoang@aeval.ai">hoang@aeval.ai</a>  |

## ACADEMIC PUBLICATIONS

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JOURNAL *Estimation of gait normality index based on point clouds through deep auto-encoder*

T. N. Nguyen and J. Meunier

EURASIP Journal on Image and Video Processing, SpringerOpen, 2019

*Applying adversarial auto-encoder for estimating human walking gait abnormality index*

T. N. Nguyen and J. Meunier

Pattern Analysis and Applications, Springer, 2019

*Measurement of human gait symmetry using body surface normals extracted from depth maps*

T. N. Nguyen, H. H. Huynh and J. Meunier

Sensors, MDPI, vol. 19, issue 4 (891), 2019

*Human gait symmetry assessment using a depth camera and mirrors*

T. N. Nguyen, H. H. Huynh and J. Meunier

Computers in Biology and Medicine, Elsevier, vol. 101, pp. 174-183, 2018

*3D reconstruction with time-of-flight depth camera and multiple mirrors*

T. N. Nguyen, H. H. Huynh and J. Meunier

IEEE Access, IEEE, vol. 6, pp. 38106-38114, 2018

*Skeleton-based abnormal gait detection*

T. N. Nguyen, H. H. Huynh and J. Meunier

Sensors, MDPI, vol. 16, issue 11 (1792), 2016

CONFERENCE *Anomaly Detection in Video Sequence with Appearance-Motion Correspondence (acceptance rate: 25%)*

T. N. Nguyen and J. Meunier

International Conference on Computer Vision (ICCV), Korea, 2019

*Hybrid Deep Network for Anomaly Detection (spotlight)*

(acceptance rate: 28%)

T. N. Nguyen and J. Meunier

30th British Machine Vision Conference (BMVC), UK, 2019

*Assessment of gait normality using a depth camera and mirrors*

T. N. Nguyen, H. H. Huynh and J. Meunier

IEEE Conf. on Biomedical and Health Informatics, USA, 2018

*Matching-based depth camera and mirrors for 3D reconstruction*

T. N. Nguyen, H. H. Huynh and J. Meunier

SPIE 3D Imaging, Visualization, and Display, USA, 2018

*Skeleton-based gait index estimation with LSTMs*

T. N. Nguyen, H. H. Huynh and J. Meunier

IEEE Int. Conf. on Computer and Information Science, Singapore, 2018

- CONFERENCE *Estimating skeleton-based gait abnormality index by sparse deep auto-encoder*  
(cont.) **T. N. Nguyen**, H. H. Huynh and J. Meunier  
IEEE Int. Conf. on Communications and Electronics, Vietnam, 2018
- Abnormal gait detection with one camera using hidden Markov model*  
**T. N. Nguyen**, H. H. Huynh and J. Meunier  
IEEE Int. Conf. on Computing and Communication Tech., Vietnam, 2015
- Recognizing Vietnamese sign language based on rank matrix*  
D. H. Vo, **T. N. Nguyen**, H. H. Huynh and J. Meunier  
IEEE Int. Conf. on Advanced Technologies for Communications, Vietnam, 2015
- Geometry-based static hand gesture recognition using support vector machine*  
**T. N. Nguyen**, D. H. Vo, H. H. Huynh and J. Meunier  
IEEE Int. Conf. on Control Auto. Robotics & Vision, Singapore, 2014
- Extracting silhouette-based characteristics for human gait analysis using one camera*  
**T. N. Nguyen**, H. H. Huynh and J. Meunier  
ACM Sym. on Information and Communication Technology, Vietnam, 2014
- Modeling dynamic hand gesture based on geometric features*  
D. H. Vo, H. H. Huynh and **T. N. Nguyen**  
IEEE Int. Conf. on Advanced Tech. for Communications, Vietnam, 2014
- Traffic sign recognition using gabor filters and artificial neural network*  
H. H. Huynh, **T. N. Nguyen** and J. Meunier  
IEEE Int. Conf. on Computing and Communication Tech., Vietnam, 2013
- Real-time video-based fall detection using motion gradients*  
H. H. Huynh, **T. N. Nguyen** and J. Meunier  
IEEE Int. Sym. on Signal Proc. and Information Technology, Vietnam, 2012