Trong Nguyen Nguyen

Contact Information

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Summary

He is currently a postdoctoral researcher at University of Montreal. He has had a passion for vision system and AI since he was a undergraduate student. He is looking for opportunities working on realistic projects. He is friendly, self-motivated, and independent.

Work Experience

Postdoctoral researcher at 3D Vision Laboratory
University of Montreal (Montreal, QC, Canada)

Jan 2020 - Present
Project: Anomaly detection in video
Designing deep networks for detecting anomalies in surveillance videos.

Jan 2021 -
Project: Abnormal mobility and fall risk assessment
Developing algorithms for predicting and detecting abnormal motions and the risk of falling in older adults. This project will be in cooperation with CRIUGM (Centre de recherche de l'Institut universitaire de gériatrie de Montréal).

Jul 2014 - Aug 2015
Research assistant at Vision Laboratory
University of Science and Technology (Danang, Vietnam)
Project: Vision-based hand gesture recognition
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 Image Processing Laboratory
University of Montreal (Montreal, QC, Canada)
Project: Abnormal gait detection with one camera using HMM
Developed an algorithm for detecting various types of anomalous walking gaits given a sequence of side-view silhouettes.

Education

Sep 2015 to Dec 2019
Ph.D. in Computer Science, Image Processing Laboratory
University of Montreal, Montreal, QC, Canada
Dissertation: "Human gait analysis using a depth camera and mirrors"
Supervisor: Prof. Jean Meunier
Project focuses on:

- Examining depth estimation in a setup of a depth camera and 2 mirrors
- Reconstructing 3D point cloud in this setup
- Estimating human walking gait normality index
- Technique: OpenCV, PCL, deep learning

Dec 2012 to Jan 2015	M.Sc. in Computer Science, **The University of Danang**, Danang, Vietnam Thesis: "Human gait analysis using one camera" Advisor: Huu Hung Huynh, PhD Thesis score 8.9/10 - rank 1^{st} **Project focuses on:** • Feature extraction on a sequence of 2D human gait silhouettes • Building a model of normal gait cycles • Detecting abnormal walking gaits • Technique: Matlab, HMM
Sep 2007 to Jun 2012	B.Sc. in Information Technology, **University of Science & Technology** Thesis: "Detecting fake-folder executable files using neural network" Advisor: Huu Hung Huynh, PhD Thesis score 9.6/10 **Project focuses on:** • Typical methods related to Image Processing and Machine Learning • Designing neural network working on hand-crafted color features • Technique: C#, OOP

Scholarships by University of Montreal

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

Languages

Vietnamese:	Native
English:	Professional
French:	Basic

Computer Skills

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

External reviewer

- IEEE Trans. on Neural Systems and Rehabilitation Engineering (IEEE)
- IEEE Access (IEEE)
- Journal of Biomechanics (Elsevier)
- SN Applied Sciences (Springer)
- Sensors (MDPI)
- Applied Sciences (MDPI)

Selected journal articles

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

Selected conference papers

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

Estimating skeleton-based gait abnormality index by sparse deep auto-encoder
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 Processing and Information Technology, Vietnam, 2012

References

Sébastien Roy
(Postdoctoral supervisor)
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Jean Meunier
(Ph.D. supervisor)
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Hoang Anh Nguyen
(Research cooperation)
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