Curriculum Vitae – Trong Nguyen Nguyen

20/05/2019

Contact Information

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Summary

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. My current goal is to improve my knowledge as well as technical and communication skills by looking for opportunities working on realistic projects. I am friendly, self-motivated, and independent.

Education

Ph.D. in Computer Science *09/2015 – present*

University of Montreal (Montreal, Quebec, Canada)
Project: Human gait analysis using a depth camera and mirrors
Supervisor: Prof. Jean Meunier, DIRO, University of Montreal
My dissertation focuses on

- Examining depth estimation in a setup of a depth camera and 2 mirrors
- Reconstructing 3D point cloud in this setup
- Reducing depth distortion when working with a ToF depth camera
- Proposing an approach providing index of human gait normality
- Improving the approach to automatically detect abnormal gaits
- Employ: OpenCV, PCL, PCA, keypoint detector, clustering, HMM, deep learning

M.Sc. in Computer Science *12/2012 – 01/2015*

The University of Danang (Danang, Vietnam)
Project: "Human gait analysis using one camera"
Thesis score 8.9/10 - rank 1st
The thesis focused on

- Feature extraction on a sequence of 2D human gait silhouettes
- Modeling a model of normal gait cycles
- Detecting abnormal human gait based on the trained model
- Employ: Image Processing Toolbox (Matlab), MHI, clustering, HMM

B.Sc. in Information Technology *09/2007 – 06/2012*

Danang University of Science and Technology (Danang, Vietnam)
Project: "Detecting fake-folder executable files using neural network"
Thesis score 9.6/10

- Focusing on basic knowledge related to Image Processing and Machine Learning
- Employing a neural network and simple color-based features.

Skills

Programming languages: C#, C++, Matlab, Mathematica, Python.
Technologies: Accord.NET, OpenCV, Point Cloud Library, TensorFlow, Caffe (learning).
Languages: English, Vietnamese.

Awards

Excellence Scholarship
Department of Computer Science and Operations Research, University of Montreal
8 times: Fall (2015, 2016, 2017, 2018), Winter (2016, 2017, 2018, 2019)

Experience

Intern at Vision Laboratory *03/2014 – 06/2014*

University of Montreal (Montreal, Quebec, Canada)
Project: Abnormal gait detection with one camera using Hidden Markov Model
Advisor: Prof. Jean Meunier
This work served my M.Sc. thesis.

Research assistant at Vision Laboratory *07/2014 – 08/2015*

IT Faculty, Danang University of Science and Technology (Danang, Vietnam)
Research fields: hand gesture recognition, human gait analysis
Advisor: Dr. Huynh Huu Hung
The researches focused on

- Extracting geometrical features for hand shapes
- Recognizing static hand gestures based on silhouette and/or depth image
- Dealing with combinations of static hand gestures (letter and accent)
- Considering dynamic hand gestures

Journal articles

Estimation of gait normality index based on point clouds through deep auto-encoder
T.-N. Nguyen, J. Meunier
EURASIP Journal on Image and Video Processing, SpringerOpen, 2019 (Accepted).

Applying adversarial auto-encoder for estimating human walking gait abnormality index
T.-N. Nguyen, J. Meunier
Pattern Analysis and Applications, Springer, 2019.

Skeleton-based abnormal gait detection
T.-N. Nguyen, H.-H. Huynh, J. Meunier
Sensors, MDPI, vol. 16, issue 11 (1792), 2016.

Measurement of human gait symmetry using body surface normals extracted from depth maps
T.-N. Nguyen, H.-H. Huynh, 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, 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, J. Meunier
IEEE Access, IEEE, vol. 6, pp. 38106-38114, 2018.

Skeleton-based abnormal gait detection
T.-N. Nguyen, H.-H. Huynh, J. Meunier
Sensors, MDPI, vol. 16, issue 11 (1792), 2016.

Conference papers

Matching-based depth camera and mirrors for 3D reconstruction *(oral)*
T.-N. Nguyen, H.-H. Huynh, J. Meunier
SPIE 3D Imaging, Visualization, and Display, USA, April 2018.

Assessment of gait normality using a depth camera and mirrors *(oral)*
T.-N. Nguyen, H.-H. Huynh, J. Meunier
IEEE Conf. on Biomedical and Health Informatics, USA, March 2018.

CONFERENCE PAPERS (CONT.)

Skeleton-based gait index estimation with LSTMs *(oral)*
T.-N. Nguyen, H.-H. Huynh, J. Meunier
IEEE Int. Conf. on Computer and Information Science, Singapore, June 2018.

Estimating Skeleton-Based Gait Abnormality Index by Sparse Deep Auto-Encoder *(oral)*
T.-N. Nguyen, H.-H. Huynh, J. Meunier
IEEE Int. Conf. on Communications and Electronics, Vietnam, July 2018.

Recognizing Vietnamese sign language based on rank matrix and alphabetic rules *(oral)*
D.-H. Vo, T.-N. Nguyen, H.-H. Huynh, J. Meunier
IEEE Int. Conf. on Advanced Technologies for Communications, Vietnam, Oct 2015.

Abnormal gait detection with one camera using hidden Markov model *(poster)*
T.-N. Nguyen, H.-H. Huynh, J. Meunier
11^{th} IEEE Int. Conf. on Computing and Communication Technologies, Vietnam, Jan 2015.

Geometry-based static hand gesture recognition using support vector machine *(oral)*
T.-N. Nguyen, D.-H. Vo, H.-H. Huynh, J. Meunier
13^{th} IEEE Int. Conf. on Control Automation Robotics & Vision, Singapore, Dec 2014.

Extracting silhouette-based characteristics for human gait analysis using one camera *(oral)*
T.-N. Nguyen, H.-H. Huynh, J. Meunier
5^{th} ACM Symposium on Information and Communication Technology, Vietnam, Dec 2014.

Modeling dynamic hand gesture based on geometric features *(oral)*
D.-H. Vo, H.-H. Huynh, T.-N. Nguyen
IEEE Int. Conf. on Advanced Technologies for Communications, Vietnam, Oct 2014.

Traffic sign recognition using gabor filters and artificial neural network *(poster)*
H.-H. Huynh, T.-N. Nguyen, J. Meunier
10^{th} IEEE Int. Conf. on Computing and Communication Technologies, Vietnam, Nov 2013.

Real-time video-based fall detection using motion gradients and shape features *(oral)*
H.-H. Huynh, T.-N. Nguyen, J. Meunier
IEEE Int. Symposium on Signal Processing and Information Technology, Vietnam, Dec 2012.

REFERENCES

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