Manh Huynh

Contact Information

Ph.D. Candidate in Computer Science & Engineering
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Homepage
LinkedIn
Scholar
Github

Research Interests

My research interests span the fields of computer vision, machine learning, and robotics, focusing on **tracking, understanding, and predicting human motion, action, and behaviors** in applications of autonomous vehicles, robotics, and surveillance systems. I am specially interested in solving computer vision problems under adverse conditions (e.g., severe weather, low-light vision, and occlusions) and online adaption of neural networks to deal with unseen conditions.

- Motion Prediction
- Pose Prediction
- Activity Forecasting
- Online Adaptation
- Human Tracking

Education

University of Colorado Denver — Denver, CO, USA
Ph.D., Computer Science and Engineering — Expected 09/2022
- Thesis: Human Motion Forecasting in Dynamic Scenes
- Advisor: Professor Gita Alaghband

Chonnam National University — Gwangju, Korea
M.S. Computer Science and Engineering — Feb 2014
- Thesis: Salient Object Detection
- Advisor: Professor Gueesang Lee

HCM National University of Technology — Viet Nam
B.S. Computer Science and Engineering — Feb 2012
- Thesis: Analysis of GPS Services on Embedded Hardwares
- Advisor: Professor Anh Vu-Dinh Duc

Work Experiences

University of Colorado Denver — Denver, CO, USA
Research Assistant at Parallel Distributed System Lab — Feb 2016 - Present
• Working on several projects on understanding and predicting human motion, intention and behaviors.
• Worked on developing neural networks for detecting Cytotoxic Edema in young children's MRI images. (From 2020)

University of Colorado Denver — Denver, CO, USA
Instructor — Feb 2016 - Present
• Teaching Logic Design
• Teaching Introduction to Programming Languages (C++ and Python)

University of Colorado Denver — Denver, CO, USA
Lab Manager — Feb 2016 - Present
• Developed and maintained high-performance multi-core clusters for deep learning research

University of Colorado Denver — Denver, CO, USA
Teaching Assistant — Feb 2016 - Present
• Teaching Assistant for several Computer Science courses

Chonnam National University — Gwangju, Korea
Reserach Assistant in Computer Vision Lab — Feb 2012 - 2014
• Worked on salient object detection

Selected Publications See in Google Scholar.

1. **Huynh, Manh**, and Gita Alaghband. "GPRAR: Graph Convolutional Network based Pose Reconstruction and Action Recognition for Human Trajectory Prediction."The British Machine Vision Conference BMVC 2021.
2. **Huynh, Manh**, and Gita Alaghband. "AOL: Adaptive Online Learning for Human Trajectory Prediction in Dynamic Video Scenes." The British Machine Vision Conference (BMVC 2020).
3. **Huynh, Manh,** and Gita Alaghband. "Trajectory Prediction by Coupling Scene-LSTM with Human Movement LSTM." *International Symposium on Visual Computing*. Springer, Cham, 2019.
4. **Manh, Huynh,** and Gita Alaghband. "Scene-lstm: A model for human trajectory prediction." *arXiv preprint arXiv:1808.04018* (2018).
5. **Manh, Huynh,** and Gita Alaghband. "Spatiotemporal KSVD dictionary learning for online multi-target tracking." *2018 15th Conference on Computer and Robot Vision (CRV)*. IEEE, 2018.
6. **Huynh, Manh,** et al. "Poster: Mobile device identification by leveraging built-in capacitive signature." Proceedings of the 22nd ACM SIGSAC Conference on Computer and Communications Security. 2015.
7. **Huynh, Manh**, Jungyeon Yeo, and Gueesang Lee. "Saliency detection by tensor voting based Gaussian modeling." Proceedings of the 9th International Conference on Ubiquitous Information Management and Communication. 2015.
8. **Huynh, Manh** and Gueesang Lee. "A Saliency Map based on Color Boosting and Maximum Symmetric Surround." Smart Media Journal 2.2 (2013): 8-13.

9. **Huynh, Manh** and Gueesang Lee. "Small object segmentation based on visual saliency in natural images." Journal of Information Processing Systems 9.4 (2013): 592-601.

Projects

2019-Current: Online Adaption Framework for Trajectory Prediction
Developing a novel adaptive online learning (AOL) framework to predict human movement trajectories in dynamic video scenes. Our framework learns and adapts to changes in the scene environment and generates best network weights for different scenarios.

2020- Current: CytEnet
Developing novel cytotoxic edema (CE) detection systems on brain MRI images of young children and its correlation with abusive head trauma (AHT). The project is collaborated with the Children's Hospital of Colorado.

2019-2020: Human Trajectory Prediction in Dynamic Scenes
Developed GPRAR, a graph convolutional network based pose reconstruction and action recognition for human trajectory prediction.

2018-2011: Human Trajectory Prediction in Surveillance Videos
Developed a human movement trajectory prediction system that incorporates the scene information (Scene-LSTM) as well as human movement trajectories (Pedestrian movement LSTM) in the prediction process within static crowded scenes

2017-2018: Multiple Human Tracking
Developed a novel spatiotemporal discriminative KSVD dictionary algorithm (STKSVD) for learning target appearance in online multi-target tracking system.

2012-2014: Salient Object Segmentation
Developed network models to detect and segment salient objects in images.

Professional Services

from 2019	Reviewer of IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)
from 2019	Reviewer of IEEE Transactions on Multimedia
from 2020	Reviewer of IEEE Transactions on Cybernetics

Certificates

2018 Neural Networks and Deep Learning by Coursera
2018 Improving Deep Neural Networks by Coursera

Scholarships

2015-Current RA and TA sponsorship from CSE Department, UCDenver
2016, 2017 Tashiro Award
2012, 2014 Annual Graduate Scholarship at Chonnam National University.
2011 DataLogic Scanning Engineering Scholarship
2011 Annual scholarships for excellent students at HCM University of Technology

Programming Languages & Tools

Programming Languages: C++, Python
Deep Learning Tools: Pytorch, TensorFlow
Parallel Programming Libraries: CUDA, OpenMP, MPI