

Hengyue Liang

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SUMMARY

- 3rd-year Ph.D student in the Department of Electrical and Computer Engineering, University of Minnesota.
- Current research interests include: machine learning, deep learning, computer vision and deep learning in healthcare applications.
- Proficient in programming with Python, Matlab; have some experience in C++, C, SQL.
- Proficient in Pytorch, scipy, sklearn, etc, as tools for machine learning projects.

EDUCATION

Ph.D, Electrical and Computer Engineering
University of Minnesota, Twin Cities, Minneapolis, MN

Sep 2018 - Present

Master of Science, Electrical Engineering
Chalmers University of Technology, Göteborg, Sweden

Graduated: June 2017

Bachelor of Engineering, Electrical Engineering
Shanghai Jiao Tong University, Shanghai, China

Graduated: June 2015

Relevant Coursework

- Machine learning, computer vision, 3D vision, reinforcement learning and optimal control, model predictive control, stochastic optimization algorithms, applied signal processing, sensor fusion and nonlinear filtering.

RESEARCH EXPERIENCE

Graduate Research Assistant

Dec 2020 - Present

Advisor: Ju Sun

Department of Computer Science and Engineering

- Study machine learning problems related to computer vision, image processing and healthcare applications.
- On-going projects:
 - Robust image reconstruction via untrained networks[1] — explore robust and practical approaches to apply deep image priors to tasks as denoising, inpainting and super resolutions.
 - Rethink Transfer Learning in Medical Imaging [3] — examines the necessity of using deep conv nets with transfer learning for classification tasks under medical imaging domains.
 - Research underlying problems in image classifications with noisy annotated labels and how robust and accurate training can be achieved.

Graduate Research Assistant

Sep 2018 - Dec 2020

Advisor: Changhyun Choi

Department of Electrical and Computer Engineering

- Study robotic (visual) perception and manipulation problems via data-driven / deep learning methods.
- Explore how robot can learn effective policies in self supervised ways via reinforcement

learning, and can achieve sample efficiency and free from collision risks.

WORK EXPERIENCE

Applied Scientist Intern in Amazon

June 2021 - Sep 2021

Mentor: Vivek Yadav

Multi-sensory Team, Device Group, Lab 126

- A research project exploring a Audio-to-Animation system.
- Final research goal is to not only come up with a deploy-able algorithm, but also to publish a research paper at the top ML or CV conference.
- The project is still on-going and I'm not sure if I can say more about this right now.

Publications

- [1] Taihui Li, **Hengyue Liang**, Ju Sun. "Deep image prior made practical." Under review for BMVC 2022.
- [2] Taihui Li, Hengkang Wang, Le Peng, **Hengyue Liang**, Ju Sun. "Robust Autoencoders for Collective Corruption Removal." In preparation for IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI).
- [3] Le Peng, **Hengyue Liang**, Taihui Li, Ju Sun. "Rethink Transfer Learning in Medical Imaging." In preparation for Association for the Advancement of Artificial Intelligence (AAAI). Project Page: <https://sun-umn.github.io/Transfer-Learning-in-Medical-Imaging/>
- [4] **Hengyue Liang**, Xibai Lou, Yang Yang, and Changhyun Choi. "Learning Visual Affordances with Target-Orientated Deep Q-Network to Grasp Objects by Harnessing Environmental Fixtures." IEEE International Conference on Robotics and Automation (Accepted to ICRA 2021). Project Page: <https://sites.google.com/umn.edu/ki-dqn/>
- [5] Yang, Yang and Yuanhao, Liu and **Hengyue, Liang** and Xibai, Lou and Changhyun Choi. "Attribute-Based Robotic Grasping with One-Grasp Adaptation." IEEE International Conference on Robotics and Automation (Accepted to ICRA 2021). Project Page: <https://sites.google.com/umn.edu/attributes-grasping>
- [6] Yang, Yang, **Hengyue Liang**, and Changhyun Choi. "A deep learning approach to grasping the invisible." IEEE Robotics and Automation Letters 5.2 (RA-L 2020): 2232-2239. Project Page: <https://sites.google.com/umn.edu/grasping-invisible>

AWARDS

- Excellent Master Thesis Award, Department of Electrical Engineering *Chalmers, 2017*
([Thesis link](#))
- Chalmers 'Advanceez' Scholarship for international students *Aug. 2015 — June. 2017*