Tung-I Chen

Curriculum Vitae

✉ *tungichen@umass.edu*
tung-i.github.io/

Education

Ph.D. in CS **University of Massachusetts Amherst**, *Amherst, MA*
- College of Information and Computer Sciences, 2023-present

M.S. in CS **National Taiwan University**, *Taipei, Taiwan*
- Computer Science and Information Engineering, 2019-2021

B.S. in BME **National Cheng Kung University**, *Tainan, Taiwan*
- Biomedical Engineering, 2015-2019

Publications

ICRA 2023 **CFVS: Coarse-to-Fine Visual Servoing for 6-DoF Object-Agnostic Peg-In-Hole Assembly**
Bo-Siang Lu, Tung-I Chen, H.-Y. Lee, Winston H Hsu
Accepted by International Conference on Robotics and Automation (ICRA), 2023 [Paper]

ICRA 2023 **Coarse-to-Fine Point Cloud Registration with SE (3)-Equivariant Representations**
Cheng-Wei Lin, Tung-I Chen, H.-Y. Lee, W.-C. Chen, Winston H Hsu
Accepted by International Conference on Robotics and Automation (ICRA), 2023 [Paper]

ECCV 2022 **D2ADA: Dynamic Density-Aware Active Domain Adaptation for Semantic Segmentation**
Tsung-Han Wu, Y.-S. Liou, S.-J. Yuan, H.-Y. Lee, Tung-I Chen, Winston H Hsu
Accepted by European Conference on Computer Vision (ECCV), 2022 [Paper]

TMM 2021 **Dual-Awareness Attention for Few-Shot Object Detection**
Tung-I Chen, Y.-C. Liu, H.-T. Su, Y.-C. Chang, Y.-H. Lin, J.-F. Yeh, Winston H Hsu
Accepted by IEEE Transactions on Multimedia (TMM), 2021 [Paper] [Code]

IROS 2021 **ODIP: Towards Automatic Adaptation for Object Detection by Interactive Perception**
Tung-I Chen, J.-W. Wang, Winston H Hsu
Accepted by International Conference on Intelligent Robots and Systems (IROS), 2021 [Paper] [Video]

NIPS Workshop 2019 **Batch-Wise Dice Loss: Rethinking the Data Imbalance for Medical Image Segmentation**
Yu-Cheng Chang, Jhih-Yuan Lin, Min-Sheng Wu, Tung-I Chen, Winston H Hsu
Accepted by Medical Imaging meets NeurIPS, 2019 [Paper]

Research Summary

2023-2025 (expected) **Project: 3D Teleconferencing System**
Explore immersive video conferencing systems where remote participants and those in physical attendance can interact face-to-face, fostering natural social interactions
- Develop human avatars that can be created, delivered, and reconstructed with low latency
- Explore viewport-adaptive streaming for 360° video delivery
- Enable 8K real-time video streaming using NVIDIA Video Codec SDK

2021-2022 **Project: Domain Adaptation and Anomaly Detection in Autonomous Driving**
Provide autonomous vehicles with the ability to handle the unexpected and be adapted to new environments with minimal effort
- Reduce the cost of fine-tuning semantic segmentation models by actively selecting the most effective samples

- Enhance safety of autonomous driving by making semantic segmentation models aware of overconfident predictions

2019-2021 **Project: Few-Shot Learning for Robotic Grasping**

Enable a robotic arm to successfully grasp previously unseen objects using only a small set of training samples

- Develop a few-shot object detector that can detect novel instances by searching similar features between the query and sample images
- Explore a framework where an object detector can collaborate with a robotic arm to generate annotated data without human labeling

Teaching and Research Experience

UMass CICS Fall 2023 **Teaching Assistant - CS578 Distributed Computing and Systems**

Keywords: Consistency and replication, Fault tolerance and consensus, PAXOS, ZAB

National Taiwan University 2021-2022 **Research Assistant - Communications and Multimedia Lab**

Keywords: Object Detection, Point Cloud Registration, 6-DoF Robotic Grasping

Skills

Programming **Python, C++, MATLAB**

Machine Learning **PyTorch, PyTorch3D, Tensorboard, ONNX**

Tools **AWS, FFmpeg, Docker, Git, NVENC/NVDEC, LaTeX**

Language **Mandarin (Native Speaker), English**

References

Ph.D. Advisor **Prof. Ramesh Sitaraman**

Professor, Department of CICS, University of Massachusetts Amherst, MA [Webpage]

Ph.D. Advisor **Prof. Mohammad Hajiesmaili**

Assistant Professor, Department of CICS, University of Massachusetts Amherst, MA [Webpage]

M.S. Advisor **Prof. Winston Hsu**

Professor, Department of Computer Sciences, National Taiwan University, Taiwan [Webpage]

B.S. Mentor **Prof. Yu-Hua Dean Fang**

Associate Professor, Radiology and Neurology, University of Alabama at Birmingham [Webpage]