Haozheng Yu

yu000424@umn.edu | Homepage | Google Scholar

Education

University of Minnesota - Twin Cities *Minneapolis, MN, USA*

Master of Science in Computer Science *2019 - 2021*

- Advisor: Prof. Hyun Soo Park

Wuhan University *Wuhan, Hubei, China*

Double Degree in International Economics and Trade *2017 - 2019*

- Advisor: Prof. Zhen Yu

Central China Normal University *Wuhan, Hubei, China*

Bachelor of Engineering in Computer Science and Technology *2015 - 2019*

- Advisor: Prof. Xianjun Shen

Publications

Published

[1] **Haozheng Yu**, Lu He, Bing Jian, Weiwei Feng and Shan Liu. "PanelNet: Understanding 360 Indoor Environment via Panel Representation." In Computer Vision and Pattern Recognition (**CVPR**), 2023. [**pdf**].

[2] Zhixuan Yu, **Haozheng Yu**, Long Sha, Sujoy Ganguly and Hyun Soo Park. "Dense Keypoints via Multiview Supervision." In Neural Information Processing Systems (**NeurIPS**), 2021. [**Spotlight Presentation**]. [**pdf**].

Under review

[1] **Haozheng Yu**, Lu He, Xiaozhong Xu and Shan Liu. "Depth-Layout Fusion with Uncertainty for Indoor Panorama Depth Estimation." Submitted to NeurIPS 2023.

Research Experience

Media Lab, Tencent America *2022 - 2023*

Supervisor: Dr. Lu He

- Research field: Understand indoor environments from a single 360 panorama.
- Introduced the panel representation of indoor panoramas. Designed a framework that understands indoor environments from 360 images by incorporating vision Transformers designed for panoramas and a panel geometry embedding network.
- Designed a simple but useful fusion pipeline that improves the indoor panorama depth estimation results with a pretrained layout estimation model.
- Related first author paper: "PanelNet: Understanding 360 Indoor Environment via Panel Representation." **CVPR 2023**.

University of Minnesota - Twin Cities *2020 - 2021*

Advisor: Prof. Hyun Soo Park

- Developed a framework that automatically segments and reconstructs monkeys with high accuracy from multiview images.
- Worked on developing methods to estimate dense correspondence (mapping all pixels of humans/animals to a canonical surface) of human and monkeys via multiview supervision and knowledge distillation.
- Related paper: "Dense Keypoints via Multiview Supervision.", **NeurIPS 2021**.

Central China Normal University *2019*

Advisor: Prof. Xianjun Shen

- Worked on improving a toxic comments classification system with various machine learning techniques such as TextCNN and LSTM.

Notable Projects

M.S. Thesis Project *December 2021*

- **Segmentation and Dense Keypoints Estimation of Monkeys.** Learn a high-accuracy segmentation model and a dense keypoint detector for monkeys by bootstrapping on in-the-lab monkey images with 2D landmarks. Develop a framework that automatically tracks monkeys in 2D (masks) and 3D (meshes) by using the segmentation model and multiview geometry. [**pdf**]

BEng Thesis Project *May 2019*

- **Colon Cancer Tissue Classification.** Classifying the different types of tissues in colon cancer histopathology images by using Mask R-CNN.

Double Degree Thesis Project *May 2019*

- **Measuring Preferential Trade Agreements(PTAs) via TF-IDF.** Analyzing the difference and changes in the content of all bilateral Free Trade Agreements signed by China under the WTO framework via a TF-IDF based algorithm.

Honors and Awards

2021 **Spotlight Presentation**, NeurIPS 2021
2019 **Outstanding Undergraduate Thesis Award**, Central China Normal University
2019 **Outstanding Bachelor Award**, Central China Normal University
2018 **Boya Scholarship**, Central China Normal University
2017 **Student Association Work Activist Award**, Central China Normal University
2017 **Shuren Scholarship**, Central China Normal University
2016 **Boya Scholarship**, Central China Normal University

Skills

Programming Language: Python, Matlab, C/C++, C#

Frameworks & Libraries: PyTorch, Tensorflow, OpenCV, Open3d, Numpy, Matplotlib, Keras, Scikit-learn

Language: Chinese, English