ZEHAO YU

Computer Vision, Machine Learning, Deep Learning
(+86) 18030290375 • zehao.yu@uni-tuebingen.de • https://niujinshuchong.github.io

EDUCATION

University of Tübingen — **Tübingen Germany**
Ph.D in Computer Science — *Sep. 2021 - Present*
Advisor: Prof. Andreas Geiger and Torsten Sattler, Major in Computer Vision

ShanghaiTech University — **Shanghai China**
School of Information Science and Technology, M.S. in Computer Science — *Sep. 2018 - July. 2021*
Advisor: Prof. Shenghua Gao, Major in Computer Vision

Xiamen University — **Xiamen China**
Software School, B.S. in Software Engineering — *Sep. 2014 - Jun. 2018*
Advisor: Prof. Zhihong Zhang, Major in Computer Vision

PUBLICATIONS

AS-MLP: An Axial Shifted MLP Architecture for Vision — *Jul. 2021*
*Dongze Lian, **Zehao Yu**, Xing Sun, Shenghua Gao*

- Under review

SISTENet: A Two-stage Network for Monocular in-the-wild 3D Face Reconstruction — *Feb. 2020*
*Xudong Chen, **Zehao Yu**, Shenghua Gao, Shugong Xu*

- Under review

P^{2}Net: Patch-match and Plane-regularization for Unsupervised Indoor Depth Estimation — *Feb. 2020*
Zehao Yu, Lei Jin*, Shenghua Gao* — *(* means equal contribution)*

- Accepted by **ECCV 2020**

Fast-MVSNet: Sparse-to-dense Multi-View Stereo With Learned Propagation and Gauss-Newton Refinement — *Nov. 2019*
***Zehao Yu**, Shenghua Gao*

- Accepted by **CVPR 2020**

Single-Image Piece-wise Planar Reconstruction via Associative Embedding — *Feb. 2019*
Zehao Yu, Jia Zheng*, Dongze Lian, Zihan Zhou, Shenghua Gao* — *(* means equal contribution)*

- Accepted by **CVPR 2019**

Believe It or Not, We Know What You Are Looking at! — *Sep. 2018*
Dongze Lian, **Zehao Yu***, Shenghua Gao* — *(* means equal contribution)*

- Accepted by **ACCV 2018** (**Oral Presentation**)

Deep Multi-Task Learning to Recognise Subtle Facial Expressions of Mental States — *Jul. 2018*
*Guosheng Hu, Li Liu, Yang Yuan, **Zehao Yu**, Yang Hua, Zhihong Zhang, Fumin Shen, Ling Shao, Timothy Hospedales, Neil Robertson, Yongxin Yang*

- Accepted by **ECCV 2018**

Deep Stock Representation Learning: From Candlestick Charts to Investment Decisions — *Mar. 2018*
*Guosheng Hu, Yuxin Hu, Kai Yang, **Zehao Yu**, Flood Sung, Zhihong Zhang, Fei Xie, Jianguo Liu, Neil Robertson, Timpathy Hospedales, Qiangwei Miemie*

- Accepted by **ICASSP 2018**

RESEARCH EXPERIENCES

3D Human Modeling **Shenzhen China**
Research project, Tencent AI Lab *May. 2020*

- Estimate SMPL parameters from multi-view images
- Reconstruct surface geometry
- Use nueral renderer for novel view synthesis

Multi-view Stereo **Shanghai China**
Research project, ShanghaiTech University *Jun. 2019*

- Implement state-of-the-art algorithm
- Reduce GPU memory consumption
- Speed up training and inference
- State-of-the-art performance

Self-improving Visual Odometry **Shanghai China**
Course Project, ShanghaiTech University *May. 2019*

- Implement state-of-the-art algorithm
- Learnable frontend (keypoints detection and description)
- Use backend optimization to filter out bad keypoints then retrain frontend

Unsupervised Depth Estimation **Shanghai China**
Research project, ShanghaiTech University *Des. 2018*

- Implement state-of-the-art algorithm
- Transfter to indoor scenario

Nueral Markov Chain Monte Carlo **Shanghai China**
Course Project, ShanghaiTech University *Des. 2018*

- Use auto encoder to learn latent representation of high-dimensional data
- Use deep neural network to parameter MCMC kernel
- Train the MCMC kernel to directly sample latent representation via adversarial training

Single-Image Planar Reconstruction **Shanghai China**
Research Project, ShanghaiTech University(Accepted by CVPR2019) *Jul. 2018*

- Cast planar reconstruction problem as a instance segmentation problem
- Propose fast variant mean shift algorithm to group plane instance
- State-of-the-art performance and real-time performance

Human Pose Estimation **Xiamen China**
Bachelor Thsis *May. 2018*

- Propose stack feature pyramid network for human pose estimation
- Achieve comparable results with state-of-the-art performance

Gaze Following **Shanghai China**
Research Project, ShanghaiTech University(Accepted by ACCV2018) *Mar. 2018*

- Propose plausible two stage solution for gaze following, we first estimate gaze direction, then use gaze direction field to estimate gaze point
- Collect a video based gaze following dataset
- State-of-the-art performance

WORK EXPERIENCE

Tencent AI Lab **Shenzhen China**
· Computer Vision Research internship *May. 2020 - Present*

SiPhoton (Xiamen) **Xiamen China**
· Image Processing Engineer internship *Jul. 2016 - May. 2017*

AWARDS AND HONORS

National Scholarship for Master Students 2020 Oct. 2020
2020 Tencent Rhino-Bird Elite Training Program Apr. 2020
The **2nd Prize(Honorable Mention)** in Mathematical Contest in Modeling (**MCM**), America Feb. 2017
The **3rd Prize** in Collegiate Programming Contest, Fujian Province Des. 2015

SKILL

Research Insterent: 3D Reconstruction, Image Sementation, Human Pose Estimation, SLAM
Programming: Python(Pytorch, Tensorflow), C++, Java
Knowledge: Git

PROFESSIONAL SERVICES

Journal Reviewer: IEEE Transactions on Circuits and Systems for Video Technology **(TCSVT)**
Journal Reviewer: IEEE Transactions on Image Processing (**TIP**)
Conference Reviewer: Association for the Advancement of Artificial Intelligence (**AAAI**)