Ti Wang

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Research Interest

- Computer Vision and Deep Learning.
- Digital Humans, 3D Human Pose and Mesh Estimation, Action Recognition.
- Digital Animals, 2D/3D Animal Pose Estimation.

Education

École Polytechnique Fédérale de Lausanne (EPFL) *Switzerland*
Second-year PhD Student at MLAI, Advisor: Prof. Mackenzie Mathis 2024.09 – Present

University of Trento (UniTn) *Italy*
Visiting student of MHUG, Advisor: Prof. Nicu Sebe 2023.07 – 2023.09

Peking University (PKU) *China*
Third-Year Master Student in Computer Science. Advisor: Prof. Hong Liu 2021.09 – 2024.06
Research Topics: 3D Human Pose and Shape Estimation, Action Recognition. GPA: 3.75 / 4.0

Publication

- **Uncertainty-Aware Testing-Time Optimization for 3D Human Pose Estimation**
  Ti Wang, Mengyuan Liu, Hong Liu, Bin Ren, Yingxuan You, Wenhao Li, Nicu Sebe, Xia Li.
  IEEE Transactions on Multimedia (TMM), Accepted in 2025.
- **Interweaved Graph and Attention Network for 3D Human Pose Estimation**
  Ti Wang, Hong Liu, Runwei Ding, Wenhao Li, Yingxuan You, Xia Li.
  *IEEE International Conference on Acoustics, Speech and Signal Processing (**ICASSP**)*, 2023.
- **Co-Evolution of Pose and Mesh for 3D Human Body Estimation from Video**
  Yingxuan You, Hong Liu, **Ti Wang**, Wenhao Li, Runwei Ding, Xia Li.
  *IEEE International Conference on Computer Vision (**ICCV**)*, 2023. Project Page
- **GATOR: Graph-Aware Transformer with Motion-Disentangled Regression for Human Mesh Recovery from a 2D Pose**
  Yingxuan You, Hong Liu, Xia Li, Wenhao Li, **Ti Wang**, Runwei Ding.
  *IEEE International Conference on Acoustics, Speech and Signal Processing (**ICASSP**)*, 2023.
- **Self-Supervised 3D Skeleton Representation Learning with Active Sampling and Adaptive Relabeling for Action Recognition**
  Guoquan Wang, Hong Liu, Tianyu Guo, Jingwen Guo, **Ti Wang**, Yidi Li.
  *IEEE International Conference on Image Processing (**ICIP**)*, 2023.

Invention Patent

- **A 3D Human Pose Estimation Method Based on Interweaved Graph and Attention Network.**
  Hong Liu, **Ti Wang**, Wenhao Li, Yingxuan You, Runwei Ding.

Invention patent, Published Application Number: CN116129051A, 2023.

Competition

- **The Finalist Award** in Mathematical Contest in Modeling (**Top 1%**) 2020
- **First Prize** in Mathematics China Mathematical Modeling Network Challenge of Certification Cup 2020
- **First Prize** in China Undergraduate Mathematical Contest in Modeling, Jiangsu Division 2019
- **First Prize** in Advanced Mathematics Competition of Jiangsu Province 2018

Awards and Honors

- The Academic Excellence Award, *Peking University* 2022

Projects Experience

Intelligent Unmanned Supermarket Dec 2021 – June 2024

- Main Work: I am the leader of the customer-goods association module in this project, which enabling the association between customers and their purchased items in a unmanned supermarket. We design a multi-level discrimination logic to associate customers with their purchased items. When the system detects a product being taken, it analyzes the body position of the nearest customer by tracing back in time, selecting frames where the customer's body is close to the product and adding them to a candidate list. The product is assigned to the corresponding customer based on the priority order of different levels.

Visual Obstacle Avoidance based on Deep Reinforcement Learning Oct 2020 – Oct 2021

- Main Work: We present PER-D3QN, an end-to-end network architecture designed for visual obstacle avoidance in mobile robot. This architecture is a dueling architecture based deep double-Q network with prioritized experience reply. To evaluate our methodology, we construct indoor simulation environments using the Gazebo platform. We then utilize the Robot Operating System (ROS) communication mechanism to control the mobile robot's interactions within these environments. Using only continuous depth images, our model accurately predicts the actions required for effective obstacle avoidance by the mobile robot.

Facial Age Synthesis System Jun 2019 – Oct 2020

- Main Work: This project utilizes a GAN network to generate facial images corresponding to the target age label from input images. In addition to loss functions such as adversarial loss and reconstruction loss, semantic consistency loss is introduced to maintain the semantic information of the input face after domain transformation. Finally, we implemented a user-friendly facial age synthesis system.

Skills

- **Programming**: Python, Pytorch, C/C++, MATLAB, LaTeX.
- **Language**: Mandarin (Native), English.
- **Operating System**: Windows, Linux.
- **Hobbies**: Running, Half Marathon, Hiking, Swimming.

Open Source

Codes for my published papers are available here:

- (TMM 2025) UAO: https://github.com/xiu-cs/UAO-Pose3D
- (ICASSP 2023) IGANet: https://github.com/xiu-cs/IGANet
- (ICCV 2023) PMCE: https://github.com/kasvii/PMCE
- (ICASSP 2023) GATOR: https://github.com/kasvii/GATOR