Qiao Yu

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3D Vision, AIGC, 3D Recsontrcution, 3D Generation

Education

Huazhong University of Science and Technology **Sep 2019 – Jun 2025**
Direct Entry Ph.D. student of Computer Science. Supervisor: Xianzhi Li, Min Chen, Long Hu. *Wuhan, China*

Huazhong University of Science and Technology **Sep 2015 – Jun 2019**
Bachelor of Digital Media Technology, Rank: 5/191. *Wuhan, China*

Publications

1. **Q. Yu**, X. Li, Y. Tang, X. Han, L. Hu, Y. Hao, M. Chen, "Fancy123: One Image to High-Quality 3D Mesh Generation via Plug-and-Play Deformation", ***CVPR***, 2025. [Paper]
2. **Q. Yu**, X. Li, Y. Tang, J. Xu, L. Hu, Y. Hao, M. Chen, "JIMR: Joint Semantic and Geometry Learning for Point Scene Instance Mesh Reconstruction", *IEEE Transactions on Visualization and Computer Graphics* (***TVCG***), 2024. [Paper,Code]
3. **Q. Yu**, X. Li, Y. Tang, X. Han, J. Xu, L. Hu, Y. Hao, M. Chen, "PointDreamer: Zero-shot 3D Textured Mesh Reconstruction from Colored Point Cloud", *IEEE Transactions on Visualization and Computer Graphics* (***TVCG***), under review. [Paper, Code]
4. **Q. Yu**, R. Wang, J. Liu, L. Hu, M. Chen, Z. Liu, "GNN-Based Depression Recognition Using Spatio-Temporal Information: A fNIRS Study", *IEEE Journal of Biomedical and Health Informatics* (***JBHI***), 2022. **(JCR Q1)** [Paper]
5. **Q. Yu**, L. Hu, B. Alzahrani, A. Baranawi, A. Alhindi, M. Chen, "Intelligent Visual-IoT-Enabled Real-Time 3D Visualization for Autonomous Crowd Management", ***IEEE Wireless Communications***, 2022. **(IF:10.9)** [Paper]
6. J. Xu,X. Li, Y. Tang, X. Han, **Q. Yu**, Y. Hao, L. Hu, M. Chen, "SASep: Saliency-Aware Structured Separation of Geometry and Feature for Open Set Learning on Point Clouds", ***CVPR***, 2025.
7. Y. Tang, X. Han, X. Li, **Q. Yu**, J. Xu, Y. Hao, L. Hu, M. Chen, "More Text, Less Point: Towards 3D Data-Efficient Point-Language Understanding", ***AAAI***, 2025. [Paper]
8. Y. Tang, X. Han, X. Li, **Q. Yu**, Y. Hao, L. Hu, M. Chen, "MiniGPT-3D: Efficiently Aligning 3D Point Clouds with Large Language Models using 2D Priors", ***ACM Multimedia***, 2024. [Paper,Project Page]
9. Y. Tang, X. Li, J. Xu, **Q. Yu**, L. Hu, Y. Hao, M. Chen, "Point-LGMask: Local and global contexts embedding for point cloud pre-training with multi-ratio masking", *IEEE Transactions on Multimedia* (***TMM***), 2023.
10. J. Xu, X. Li, Y. Tang, **Q. Yu**, Y. Hao, L. Hu, M. Chen, "CasFusionNet: A Cascaded Network for Point Cloud Semantic Scene Completion by Dense Feature Fusion", ***AAAI***, 2022. [Paper]
11. M. Chen, L. Pan, R. Wang, Y. Xiang, Z. Huang, **Q. Yu**, M. He, J. Liu, J. Wang, et al., "Multifunctional Fiber-Enabled Intelligent Health Agents", ***Advanced Materials***, 2022. (IF:27.4) [Paper]
12. Y. Tang, N. Zhou, **Q. Yu**, D. Wu, C. Hou, G. Tao, M. Chen, "Intelligent fabric enabled 6G semantic communication system for in-cabin scenarios", *IEEE Transactions on Intelligent Transportation Systems*(***TITS***) , 24(1):1153–1162, 2022.

13. R. Wang, Y. Hao, **Q. Yu**, M. Chen, I. Humar, G. Fortino, "Depression analysis and recognition based on functional near-infrared spectroscopy", *IEEE Journal of Biomedical and Health Informatics*(***JBHI***), 25(12):4289–4299, 2021.
14. R. Wang, **Q. Yu**, B. Alzahrani, A. Barnawi, A. Alhindi, M. Zhao, "The limo-powered crowd monitoring system: Deep life modeling for dynamic crowd with edge-based information cognition", ***IEEE Sensors Journal***, 22(18):17666–17676, 2021.
15. R. Wang, B. X. Yang, Y. Ma, P. Wang, **Q. Yu**, X. Zong, Z. Huang, S. Ma, L. Hu, K. Hwang, Z. Liu, "Medical-level suicide risk analysis: A novel standard and evaluation model", ***IEEE Internet of Things Journal***, 8(23):16825–16834, 2021.

Academic Activities

Conference Reviewer: ACM MM 2024.

Projects

3D Reconstruction and Semantic understanding | *Nnational S&F Foundation Youth Program* **Aug 2022 - Present**

- [CVPR] Propose Fancy123, an enhanced one-image-to-3D pipeline, improving CLIP similarity from 0.800 to 0.835. Improve multiview consistency, generation fidelity, and texture clarity by 2D image deformation, 3D mesh deformation, and unprojection, respectively.
- [TVCG] Design JIMR, an instance mesh reconstruction framework, improving mAP of LFD@2500 from 8.55 to 11.50. Design joint segmentation and detcetion backbone to improve first-stage accuracy; incorperate explicit completion for task disentanglement and training efficiency; propose comprehensive confidence score system for proposal filtering.
- Develop PointDreamer, a colored-point-cloud-to-textured-mesh method, decreasing LPIPS score from 0.118 to 0.068. Propose a novel "project-inpaint-unproject" pipeline; improve texture clarity by utilizing diffusion-based image inpainting; alleviate border-area artifacts by designing a "Non-Border-First" unprojection strategy.

Smart Fabric Computing for Sports and Health | *Collaborate with School of Materials* **Jan 2021 - Aug 2022**

This project develop fabric sensors for data collection, AI algorithms for data processing, and 3D visualization applications.

- Lead a 3D visualization team to develop Unity applications (e.g. smart bed) to transform fabric sensor data and their AI recognition outcomes (e.g. postures, vital signs) into interactive visualizations (e.g. character animation, data curves).

Depression Diagnosis via Spatiotemporal Modeling | *Collaborate with Hubei General Hospital* **Jan 2021 - Aug 2022**

- [JBHI] Propose the first GNN-based fNIRS method for depression recognition, increasing accuracy by 3%.

Large-Scale Crowd Management 3D Visualization System | *Collaborate with KAU* **Feb 2020 - Dec 2022**

- Lead and manage a 7-member team, including technical roadmap, project architecture design and coding;
- Reconstruct a LiDAR-scanned outdoor scene; develop a Unity-based real-time visualization and simulation platform using Unity's Data-Oriented Technology Stack (DOTS) and MassMotion (a Crowd Simulation Engine) SDK.
- Conduct regular meetings with KAU collaborators, receiving their high acclaim for the technical plan, development progress, English fluency, and communication capabilities.

Honors and Awards

- 2024 **Best Paper Award**, 3rd Annual Academic Conference, School of Computer Science
- 2021 Outstanding Student of HUST
- 2021 **Sangfor Scholarship**
- 2021 ZhiXing Excellence Third Prize of HUST
- 2020-2023 First-class PhD Academic Scholarship
- 2020, 2023 Social Activity Activist of HUST
- 2017 **National First Prize** (Micro Film Category), 10th Chinese Collegiate Computing Competition
- 2019 Outstanding Graduate of HUST
- 2016 Outstanding Student Cadre of HUST
- 2017 Outstanding Student of HUST
- 2016 HUST Freshman Self-improvement Scholarship
- 2016 **Excellence Award**, First Division Semi-finals of HUST **Speech Contest**