Zhiyang (Frank) Dou

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Bio. I am a Ph.D. candidate in Computer Graphics Group at *The University of Hong Kong* , supervised by *Prof. Wenping Wang* and *Prof. Taku Komura*. I received my B. Eng. degree with honors at *Shandong University*. My undergraduate research advisor is *Prof. Shiqing Xin*.

I am currently a visiting scholar in the Department of Computer and Information Science at the *University of Pennsylvania*.

Research interests : Character Animation, Geometric Modeling and Processing, Computer Graphics, Human Behavior Analysis.

🎓 Education

Aug 2020 – Present	Ph.D. in Computer Graphics, Computer Science, *The University of Hong Kong*.
Sep 2016 – June 2020	B.Eng in Computer Science Honours, Computer Science (Elite Program), *Shandong University*.

📖 Research Work

Recent Preprints :

18. Surf-D : High-Quality Surface Generation for Arbitrary Topologies using Diffusion Models
    Zhengming Yu*, **Zhiyang Dou***, Xiaoxiao Long, Cheng Lin, Zekun Li, Yuan Liu, Norman Müller, Taku Komura, Marc Habermann, Christian Theobalt, Xin Li, Wenping Wang.
    Arxiv 2023.
    [Project Page][Paper][Code]

17. EMDM : Efficient Motion Diffusion Model for Fast, High-Quality Human Motion Generation
    Wenyang Zhou, **Zhiyang Dou**†, Zeyu Cao, Zhouyingcheng Liao, Jingbo Wang, Wenjia Wang, Yuan Liu, Taku Komura, Wenping Wang, Lingjie Liu.
    Arxiv 2023. († Project Lead)
    [Project Page][Paper][Code]

16. TLControl : Trajectory and Language Control for Human Motion Synthesis
    Weilin Wan, **Zhiyang Dou**, Taku Komura, Wenping Wang, Dinesh Jayaraman, Lingjie Liu.
    Arxiv 2023.
    [Project Page][Paper][Code]

15. Disentangled Clothed Avatar Generation from Text Descriptions
    Jionghao Wang, Yuan Liu, **Zhiyang Dou**, Zhengming Yu, Yongqing Liang, Xin Li, Wenping Wang, Rong Xie, Li Song.
    Arxiv 2023.
    [Project Page][Paper][Code]

14. Wonder3D : Single Image to 3D using Cross-Domain Diffusion
    Xiaoxiao Long*, Yuanchen Guo*, Cheng Lin, Yuan Liu, **Zhiyang Dou**, Lingjie Liu, Yuexin Ma, Song-Hai Zhang, Marc Habermann, Christian Theobalt, Wenping Wang.
    Arxiv 2023.
    [Project Page][Paper][Code]

13. Coverage Axis++ : Efficient Inner Point Selection for 3D Shape Skeletonization
    Zimeng Wang*, **Zhiyang Dou***, Rui Xu, Cheng Lin, Yuan Liu, Xiaoxiao Long, Shiqing Xin, Lingjie Liu, Taku Komura, Xiaoming Yuan, Wenping Wang.
    Arxiv 2023.
    [Project Page][Paper][Code]

Accepted Papers :

12. C·ASE : Learning Conditional Adversarial Skill Embeddings for Physics-based Characters
    Zhiyang Dou, Xuelin Chen, Qingnan Fan, Taku Komura, Wenping Wang.
    SIGGRAPH Asia 2023.
    [Project Page][Paper][Video]

11. TORE : Token Reduction for Efficient Human Mesh Recovery with Transformer
    Zhiyang Dou*, Qingxuan Wu*, Cheng Lin, Zeyu Cao, Qiangqiang Wu, Weilin Wan, Taku Komura, Wenping Wang.
    IEEE International Conference on Computer Vision (ICCV) 2023.
    [Project Page][Paper][Code]

10. Globally Consistent Normal Orientation for Point Clouds by Regularizing the Winding-Number Field
    Rui Xu, **Zhiyang Dou**, Ningna Wang, Shiqing Xin, Xiaohu Guo, Wenping Wang.
    ACM Transactions on Graphics. SIGGRAPH 2023.
    SIGGRAPH 2023 Best Paper Award.
    [Project Page][Code]

9. RFEPS : Reconstructing a Feature-line Equipped Polygonal Surface from Unoriented Point Cloud
   Rui Xu, Zixiong Wang, **Zhiyang Dou**, Chen Zong, Shiqing Xin, Mingyan Jiang, Changhe Tu.
   ACM Transactions on Graphics. SIGGRAPH Asia 2022.
   [Project Page][Code]

8. Coverage Axis : Inner Point Selection for 3D Shape Skeletonization
   Zhiyang Dou, Cheng Lin, Rui Xu, Lei Yang, Shiqing Xin, Taku Komura, Wenping Wang.
   Computer Graphics Forum. EUROGRAPHICS 2022.
   Fast-Forward Attendees Award, 2nd Place.
   [Project Page][Code]

7. Analysis of SARS-CoV-2 Transmission in a University Classroom based on Real Human Close Contact Behaviors
   Nan Zhang, Xueze Yang, Boni Su, **Zhiyang Dou**#..
   Science of the Total Environment (STOTEN), 2024.

6. Analysis of SARS-CoV-2 Transmission in Airports based on Real Human Close Contact Behaviors
   Xueze Yang*, **Zhiyang Dou***, Yuqing Ding, Boni Su, Hua Qian, Nan Zhang.
   Journal of Building Engineering (JOBE), 2023.

5. Popularization of High-Speed Railway Reduces the Infection Risk via Close Contact Route during Journey
   Nan Zhang, Xiyue Liu, Shuyi Gao, Boni Su, **Zhiyang Dou**#.
   Sustainable Cities and Society (SCS), 2023. #Corresponding Author.

4. Student close contact behavior and COVID-19 transmission in China's classrooms
   Yong Guo*, **Zhiyang Dou***, Nan Zhang, Xiyue Liu, Boni Su, Yuguo Li, Yinping Zhang.
   PNAS Nexus, 2023.
   Featured in a press release by EurekAlert.
   [Project Page][Paper][Press Release]

3. Close Contact Behaviors of University and School Students in 10 Typical Indoor Environments
   Nan Zhang, Li Liu, **Zhiyang Dou**, Xiyue Liu, Xueze Yang, Yong Guo, Silan Gu, Yuguo Li, Hua Qian, Jianjian Wei.
   Journal of Hazardous Materials (JHM), 2023.

2. Real Close Contact Behavior-based COVID-19 Transmission and Interventions in Subway
   Xiyue Liu*, **Zhiyang Dou***, Lei Wang, Boni Su, Tianyi Jin, Yong Guo, Jianjian Wei, Nan Zhang.
   Journal of Hazardous Materials (JHM), 2022.

1. Top-Down Shape Abstraction Based on Greedy Pole Selection
   Zhiyang Dou, Shiqing Xin, Rui Xu, Jian Xu, Yuanfeng Zhou, Shuangmin Chen, Wenping Wang, Xiuyang Zhao, Changhe Tu.
   IEEE Transactions on Visualization and Computer Graphics (TVCG), 2021.

   *Equal Contribution, # Corresponding Author.

Research Experience

> Nov. 2023 - Nov. 2024 Visiting Scholar, University of Pennsylvania.
> Jul. 2023 - Nov. 2023 Research Intern, Tencent Games.
> Jun. 2023 - Jul. 2023 Visiting Scholar, Beijing University of Technology (BJUT).
> Apr. 2022 - Jun. 2023 Research Intern, Tencent AI Lab.
> Jul. 2019 - Oct. 2019 Research Assistant, The University of Hong Kong.
> Mar. 2018 - Jun. 2019 Research Assistant (part-time), Interdisciplinary Research Center (IRC).

Awards & Scholarships

> Oct 2023 **The Best Paper Award, SIGGRAPH 2023**.
> Oct 2020 **Postgraduate Scholarship**.
> Oct 2019 **National Scholarship** (0.2%).
> Oct 2018 **National Scholarship** (0.2%).
> Dec 2018 **Presidential Scholarship** (top 30 at the University).

Patents & Competitions

> [Patent] Method, Device and Process for Physics-based Motion Generation, 2023, Under Review.
> [Patent] Method, Device and Process for Hand-to-Surface Contact Detection, 2023, Under Review.
> [Patent] Method, Device and Process for Social Distancing, 2020, Patent CN202110334126.
> **Meritorious Winner**, International Mathematical Modeling Contest : MCM, 2019.
> **Meritorious Winner**, International Mathematical Modeling Contest : ICM, 2018.

> **National First Prize (1%)**, National Collegiate Mathematical Modeling Contest, 2019.
> **National First Prize, Best Paper (8/38573)**, National Collegiate Mathematical Modeling Contest, 2018.

☰ Services

> **Reviewer Services :** SIGGRAPH ; SIGGRAPH ASIA ; TVCG ; TIP ; ICCV ; CVPR ; GM, CAD (CADJ) ; GMP ; CGI ; ICONIP ; FSDM ; MLIS.
> **2023 - 2024** Teaching Assistant of COMP3271 Computer Graphics.
> **2022 - 2023** Teaching Assistant of COMP3362 Hands-on AI : Experimentation and Applications.
> **2021 - 2022** Teaching Assistant of COMP3362 Hands-on AI : Experimentation and Applications.
> **2020 - 2021** Teaching Assistant of COMP2120 Computer organization.
> **2021 - 2022** Junior Resident Tutor at Graduate House.
> **2018 - 2019** Co-founder of Open Interest Lab (IPLab) at SDU (By 2022, we have more than 120 members).

☰ Student Mentorship Experience

(*Sorted alphabetically by last name*)

> Jamie Zeyu Cao, University of Cambridge (B.A), University of Cambridge (M.Sc).
> Henry Douhan Wang, Imperial College London (B.Sc).
> Xiyue Liu, Beijing University of Technology (B.Eng), Beijing University of Technology (M.Eng).
> Zexin Lin, The Chinese University of Hong Kong, Shenzhen (B.Eng).
> Peter Qingxuan Wu, University of Oxford (B.A), University of Pennsylvania (M.Sc).
> Sooa Park, The University of Hong Kong (M.Eng).
> Rui Xu, Shandong University (B.Eng), Shandong University (M.Eng), The University of Hong Kong (Ph.D).
> Xueze Yang, Beijing University of Technology (B.Eng), Beijing University of Technology (M.Eng).
> Zhengming Yu, South China University of Technology (B.Eng), Texas A&M University (Ph.D).
> Andy Wenyang Zhou, University of Cambridge (B.A).