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* working with Prof. Lingjie Liu.

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

🎓 Education

Oct 2023 – Present	Visiting Ph.D. in Graphics, Computer and Information Science, *University of Pennsylvania*.
Aug 2020 – Present	Ph.D. in 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

*Equal Contribution, # Corresponding Authors.

Recent Preprints :

22. **FCIL : Fish Crowd Imitation Learning from Real Videos**
Yifan Wu*, **Zhiyang Dou***, Yuko Ishiwaka, Shun Ogawa, Yuke Lou, Wenping Wang, Lingjie Liu, Taku Komura.
In Submission.

21. **Learning to Land like a Cat : Synthesizing Safe Landing Skills for Quadruped Animals**
Zhiyang Dou, Yiming Huang, Yujie Wang, Wenping Wang, Taku Komura, Lingjie Liu.
In Submission.

20. **DICE : End-to-end Deformation Capture of Hand-Face Interactions from a Single Image**
Qingxuan Wu, **Zhiyang Dou**#, Sirui Xu, Soshi Shimada, Chen Wang, Zhengming Yu, Yuan Liu, Cheng Lin, Zeyu Cao, Taku Komura, Vladislav Golyanik, Christian Theobalt, Wenping Wang, Lingjie Liu#.
In Submission.

19. **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]

18. **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]

17. **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]

16. **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]

Accepted Papers :

15. **Coverage Axis++ : Efficient Inner Point Selection for 3D Shape Skeletonization**
Zimeng Wang*, **Zhiyang Dou***, Rui Xu, Cheng Lin, Yuan Liu, Xiaoxiao Long, Shiqing Xin, Taku Komura, Xiaoming Yuan, Wenping Wang.
SGP 2024.
[Project Page][Paper][Code]

14. **Part123 : Part-aware 3D Reconstruction from a Single-view Image**
Anran Liu*, Cheng Lin*, Yuan Liu, Xiaoxiao Long, **Zhiyang Dou**, Hao-Xiang Guo, Ping Luo, Wenping Wang.
SIGGRAPH 2024.

13. 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.
CVPR 2024.
[Project Page][Paper][Code]

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.

≣ 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%).
> Dec 2018 **Presidential Scholarship** (top 30 at the University).
> Oct 2018 **National Scholarship** (0.2%).

📖 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 ; ECCV ; 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).
> Victor Yuming Feng, Imperial College London (B.Sc).
> Xiyue Liu, Beijing University of Technology (B.Eng), Beijing University of Technology (M.Eng).
> Peter Qingxuan Wu, University of Oxford (B.A), University of Pennsylvania (M.Sc).
> Yifan Wu, Yangzhou University (B.Sc), Boston University (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).