Zhiyang (Frank) **Dou**

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Bio. I am an MPhil student (voluntarily transferred from a PhD candidate) in the 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 student at *University of Pennsylvania* working with Prof. Lingjie Liu and Prof. Cynthia Sung.

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

Education

Oct 2023 – Present	Visiting Student in Graphics and Robotics, *University of Pennsylvania*.
Aug 2020 – Present	MPhil (voluntarily transferred from PhD) in Vision & Graphics, *The University of Hong Kong*.
Sep 2016 – June 2020	B.Eng in Computer Science Honours, Computer Science, *Shandong University*.

Research Work

*Equal Contribution, # Corresponding Authors.

Recent Works :

19. Simulating Righting Reflexes for Quadruped Animals and Robots
Zhiyang Dou, et al.

18. PriorMimic : On Scalable and Reusable Skill Learning for Physics-Based Characters
Zhiyang Dou, et al.

Selected Publications :

17. Dynamic Realms : 4D Content Analysis, Recovery and Generation with Geometric, Topological and Physical Priors
Zhiyang Dou.
ECCV 2024 Doctoral Consortium.

[Imitation Learning for Phys Animation]

16. CBIL : Collective Behavior Imitation Learning for Fish from Real Videos
Yifan Wu*, **Zhiyang Dou***, Yuko Ishiwaka, Shun Ogawa, Yuke Lou, Wenping Wang, Lingjie Liu, Taku Komura.
ACM Transactions on Graphics. SIGGRAPH ASIA 2024.
[Project Page]

15. 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]

[Human Motion Synthesis & Motion Capture & Mesh Recovery]

14. 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#.
ICLR 2025.
[Project Page][Paper][Code]

13. 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.
ICCV 2023.
[Project Page][Paper][Code]

12. 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.
ECCV 2024. († Project Lead)
[Project Page][Paper][Code]

11. TLControl : Trajectory and Language Control for Human Motion Synthesis
Weilin Wan, **Zhiyang Dou**, Taku Komura, Wenping Wang, Dinesh Jayaraman, Lingjie Liu.
ECCV 2024.
[Project Page][Paper][Code]

[Shape Generation & Reconstruction]

10. **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.
CVF ECCV 2024.
[Project Page][Paper][Code]

9. **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.
CVF ECCV 2024.
[Project Page][Paper][Code]

8. **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.
CVF CVPR 2024.
[Project Page][Paper][Code]

[Geometric Computing]

7. **Coverage Axis : Inner Point Selection for 3D Shape Skeletonization**
Zhiyang Dou, Cheng Lin, Rui Xu, Lei Yang, Shiqing Xin, Taku Komura, Wenping Wang.
EG Computer Graphics Forum. EUROGRAPHICS 2022.
Top Cited Article in CGF 2022-2023. Fast-Forward Attendees Award, 2nd Place.
[Project Page][Code]

6. **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.
A follow-up of **Coverage Axis**.
EG Computer Graphics Forum. ACM SIGGRAPH/Eurographics SGP 2024.
[Project Page][Paper][Code]

5. **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]

4. **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.

[Human Behavior Analysis]

3. **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]

2. **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.

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

Awards, Scholarships and Honors

- **Jul** 2024 **Top Cited Article in CGF 2022-2023**.
- **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%).

Services

- **Reviewer Services :** SIGGRAPH; SIGGRAPH ASIA; ACM TOG; TVCG; EG; ICCV; CVPR; ECCV; 3DV; ICLR; AAAI; PG; TMM; TIP; GM; CAD (CADJ); GMP; CVM; CGI; ICONIP; CVPRW, ECCVW.

- **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).

Research Experience

- **Oct. 2023 - May. 2024** Visiting Scholar, University of Pennsylvania.
- **Jul. 2023 - Nov. 2023** Research Intern, Tencent Games.
- **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).

Patents & Competitions

- **[Patent]** Method, Device and Process for Hand-to-Surface Contact Detection, 2023, Under Review.
- **[Patent]** CN116959095A Training method, device, equipment, storage medium and product of motion prediction model, 2023.
- **[Patent]** CN113111743A Personnel distance detection method and device, 2021.
- **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.

Student Mentorship Experience

(*Sorted alphabetically by last name.*)

- Jamie Zeyu Cao, University of Cambridge (BA), University of Cambridge (MS), University of Cambridge (PhD).
- Chuhao Chen, Tsinghua University (BEng), University of California San Diego (MS), University of Pennsylvania (RA).
- Victor Yuming Feng, Imperial College London (BS).
- Yiming Huang, NYU Shanghai (BEng), University of Pennsylvania (MS & PhD).
- Haodong Li, Zhejiang University (BEng), HKUST(GZ) (MEng).
- Xiyue Liu, Beijing University of Technology (BEng), Beijing University of Technology (MEng).
- Sooa Park, The University of Hong Kong (BEng).
- Nithasree Somanathan, Ramaiah Institute Of Technology (BEng), University of Pennsylvania (MS).
- Zilong Wang, The University of Texas at Dallas (PhD).
- Peter Qingxuan Wu, University of Oxford (BA), University of Pennsylvania (MS).
- Yifan Wu, Yangzhou University (BS), Boston University (MS), The University of Hong Kong (RA).
- Rui Xu, Shandong University (BEng), Shandong University (MEng), The University of Hong Kong (PhD).
- Shuyang Xu, The University of Hong Kong (BEng).
- Zhengming Yu, South China University of Technology (BEng), Texas A&M University (PhD).
- Libo Zhang, Tsinghua University (BEng & BS).
- Tingyang Zhang, Peking University (BS).
- Andy Wenyang Zhou, University of Cambridge (BA).