

Zhiyang (Frank) Dou

🔗 frank-zy-dou.github.io

✉ frankzydou@gmail.com ✉ zhiyang0@connect.hku.hk ✉ zydou@seas.upenn.edu

📍 SIGLAB Moore 103, Moore School Building, 200 South 33rd Street, Philadelphia, PA 19104, U.S.A.

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 Ph.D. 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, <i>University of Pennsylvania</i> . |
| Aug 2020 – Present | Ph.D. in Vision & Graphics, Computer Science, <i>The University of Hong Kong</i> . |
| Sep 2016 – June 2020 | B.Eng in Computer Science Honours, Computer Science (Elite Program), <i>Shandong University</i> . |

📖 Research Work (Selected Publications)

*Equal Contribution, # Corresponding Authors.

Recent Works :

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

Selected Publications :

19. **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]



18. **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]
17. **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]

16. **TORÉ : 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]
15. **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]
14. **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]

13. **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.
🏆 ECCV 2024.
[Project Page][Paper][Code]

12. **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.
 ECCV 2024.
[\[Project Page\]](#)[\[Paper\]](#)[\[Code\]](#)
 11. **Wonder3D : Single Image to 3D using Cross-Domain Diffusion**
Xiaoxiao Long*, Yuanchen Guo*, Cheng Lin, Yuan Liu, **Zhiyang Dou**, Lingjie Liu, Yuxin Ma, Song-Hai Zhang, Marc Habermann, Christian Theobalt, Wenping Wang.
 CVPR 2024.
[\[Project Page\]](#)[\[Paper\]](#)[\[Code\]](#)
- [Geometric Computing]**
10. **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.
Top Cited Article in CGF 2022-2023. Fast-Forward Attendees Award, 2nd Place.
[\[Project Page\]](#)[\[Code\]](#)
 9. **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**.
 Computer Graphics Forum. ACM SIGGRAPH/Eurographics SGP 2024.
[\[Project Page\]](#)[\[Paper\]](#)[\[Code\]](#)
 8. **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.
[\[Project Page\]](#)[\[Code\]](#)
 7. **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.
[\[Project Page\]](#)[\[Code\]](#)
 6. **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]**
5. **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.
 4. **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.
 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, Yiping 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. **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.

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 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%).

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.

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).

Student Mentorship Experience

(Sorted alphabetically by last name.)

- > Jamie Zeyu Cao, University of Cambridge (BA), University of Cambridge (MS), University of Cambridge (PhD).
- > Chuhaio 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).
- > Peter Qingxuan Wu, University of Oxford (BA), University of Pennsylvania (MS), OpenAI (Technical Staff).
- > 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).
- > 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).