

# Zhiyang (Frank) Dou

🔗 [frank-zy-dou.github.io](https://frank-zy-dou.github.io)

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📍 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

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|----------------------|---|
| 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.  
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.

### 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. **FCIL : Fish Crowd Imitation Learning from Real Videos**  
Yifan Wu\*, Zhiyang Dou\*, Yuko Ishiwaka, Shun Ogawa, Yuke Lou, Wenping Wang, Lingjie Liu, Taku Komura.  
Conditionally Accepted.  
🌐 ACM Transactions on Graphics. SIGGRAPH ASIA 2024.
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. #Corresponding Author.
  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

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- > 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

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- > [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

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- > Reviewer Services : SIGGRAPH; SIGGRAPH ASIA; TVCG; EG; PG; TIP; ICCV; CVPR; ECCV; ICLR; AAAI; GM; CAD (CADJ); GMP; CGI; ICONIP; FSDM; MLIS; 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

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*(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).
- > Haodong Li, Zhejiang University (B.Eng), HKUST(GZ) (M.Eng).
- > Xiyue Liu, Beijing University of Technology (B.Eng), Beijing University of Technology (M.Eng).
- > Sooa Park, The University of Hong Kong (M.Eng).
- > Nithasree Somanathan, Ramaiah Institute Of Technology (B.Eng), University of Pennsylvania (MSE).
- > Peter Qingxuan Wu, University of Oxford (B.A), University of Pennsylvania (M.Sc).
- > Yifan Wu, Yangzhou University (B.Sc), Boston University (M.Sc).
- > 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).
- > Libo Zhang, Tsinghua University (B.Eng & B.Sc).
- > Tingyang Zhang, Peking University (B.Sc).
- > Andy Wenyang Zhou, University of Cambridge (B.A).