Zhiyang (Frank) **Dou**

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Bio. I am a Ph.D. candidate transitioning to a Master of Philosophy 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 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, *University of Pennsylvania*.
Aug 2020 – Present	Ph.D. in Vision & 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 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).