

# Zhiyang (Frank) Dou


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**Bio.** I am an incoming PhD student at *Massachusetts Institute of Technology (CSAIL)*, supervised by *Prof. Wojciech Matusik*. I will be affiliated with the Computational Design and Fabrication Group and the Computer Graphics Group. I am a Master of Philosophy (MPhil) candidate in the Computer Graphics Group at *The University of Hong Kong*, supervised by *Prof. Wenping Wang* and *Prof. Taku Komura*. I received my BEng degree with honors at *Shandong University*. My undergraduate research advisor is *Prof. Shiqing Xin*. I was 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

Aug 2025 –	Incoming PhD in Graphics, <i>Massachusetts Institute of Technology</i> .
Oct 2023 – Present	Visiting Student in Graphics, <i>University of Pennsylvania</i> .
Aug 2020 – Present	MPhil in Vision & Graphics, <i>The University of Hong Kong</i> .
Sep 2016 – June 2020	BEng in Computer Science Honours, <i>Shandong University</i> .

## Research Work

\*Equal Contribution, # Corresponding Authors.

### Recent Works :

#### 20. **MOSPA : Human Motion Generation Driven by Spatial Audio**

Shuyang Xu\*, **Zhiyang Dou**\*, Mingyi Shi, Liang Pan, Leo Ho, Jingbo Wang, Yuan Liu, Cheng Lin, Yuexin Ma, Wenping Wang#, Taku Komura#

#### 19. **Simulating Righting Reflexes for Quadruped Animals and Robots**

Zhiyang Dou, et al.

### Selected Publications :


#### 19. **Dynamic Realms : 4D Content Analysis, Recovery and Generation with Geometric, Topological and Physical Priors** Zhiyang Dou.

 ECCV 2024 Doctoral Consortium.  EUROGRAPHICS 2025 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]

#### 16. **TokenHSI : Unified Synthesis of Physical Human-Scene Interactions through Task Tokenization**

Liang Pan, Zeshi Yang, **Zhiyang Dou**, Wenjia Wang, Buzhen Huang, Bo Dai, Taku Komura, Jingbo Wang.

 CVPR 2025 (Oral). Top 3.3% of accepted papers.

[Project Page][Paper][Code]

### [Human Motion Synthesis & Motion Capture & Mesh Recovery]

#### 15. **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]

#### 14. **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]

#### 13. **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]

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

#### [Physics Modeling and Reconstruction]

11. **Vid2Sim : Generalizable, Video-based Reconstruction of Appearance, Geometry and Physics for Mesh-free Simulation**  
Chuhao Chen, Zhiyang Dou, Chen Wang, Yiming Huang, Anjun Chen, Qiao Feng, Jiatao Gu, Lingjie Liu.  
 CVPR 2025.


#### [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.  
 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.  
 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.  
 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.  
 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](#).  
 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

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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%).

## Services

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- > **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

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- > **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

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- > **[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

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*(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).
- > Haozhe Yang, 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).