

# Dong Du

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## Research Interests

Sketch-based Modeling, 3D/4D Reconstruction, 3D Shape/Scene Analysis, Image Processing

## Education

- 2014–2021 **Ph.D. in Computational Mathematics**, *University of Science and Technology of China*, China. Supervisor: Prof. Ligang Liu, Advisors: Prof. Xiaoguang Han, Prof. Hongbo Fu.
- 2010–2014 **B.Sc. in Applied Mathematics**, *Nanjing University of Science and Technology*, China. Advisor: Prof. Ligang Liu.

## Research Experience

- 2023–2024 **Postdoctoral Fellow**, *City University of Hong Kong*, Supervisor: Prof. Junhui Hou.
- 2021–2023 **Research Fellow**, *The Chinese University of Hong Kong, Shenzhen*, Supervisor: Prof. Xiaoguang Han.
- 2018–2021 **Research Associate**, *The Chinese University of Hong Kong, Shenzhen*, Supervisor: Prof. Xiaoguang Han.
- 2017–2018 **Research Associate**, *City University of Hong Kong*, Supervisor: Prof. Hongbo Fu.

## Publications

- CVPR 2023 Xiangyu Zhu\*, **Dong Du\***, Weikai Chen, Zhiyou Zhao, Yinyu Nie, Xiaoguang Han. **NerVE: Neural Volumetric Edges for Parametric Curve Extraction from Point Cloud**. IEEE Conference on Computer Vision and Pattern Recognition, 2023.
- UIST 2021 Zhongjin Luo, Jie Zhou, Heming Zhu, **Dong Du**, Xiaoguang Han, Hongbo Fu. **SimpModeling: Sketching Implicit Field to Guide Mesh Modeling for 3D Animorphic Head Design**. The 34th Annual ACM Symposium on User Interface Software and Technology, 2021.
- TVCG 2020 **Dong Du**, Xiaoguang Han, Hongbo Fu, Feiyang Wu, Yizhou Yu, Shuguang Cui, and Ligang Liu. **SAniHead: Sketching Animal-like 3D Character Heads Using a View-surface Collaborative Mesh Generative Network**. IEEE Transactions on Visualization and Computer Graphics, 2020.
- CGF 2020 **Dong Du**, Heming Zhu, Yinyu Nie, Xiaoguang Han, Shuguang Cui, Yizhou Yu, Ligang Liu. **Learning Part Generation and Assembly for Sketching Man-made Objects**. Computer Graphics Forum, 2020.
- 3DV 2020 **Dong Du**, Zhiyi Zhang, Xiaoguang Han, Shuguang Cui, Ligang Liu. **VIPNet: A Fast and Accurate Single-View Volumetric Reconstruction by Learning Sparse Implicit Point Guidance**. International Conference on 3D Vision, 2020.
- ECCV 2020 Heming Zhu, Yu Cao, Hang Jin, Weikai Chen, **Dong Du**, Zhangye Wang, Shuguang Cui, Xiaoguang Han. **Deep Fashion3D: A Dataset and Benchmark for 3D Garment Reconstruction from Single Images**. European Conference on Computer Vision, 2020 (Oral).

- CVPR 2020 Yiqun Lin, Zizheng Yan, Haibin Huang, **Dong Du**, Ligang Liu, Shuguang Cui, Xiaoguang Han. **FPConv: Learning Local Flattening for Point Convolution**. IEEE Conference on Computer Vision and Pattern Recognition, 2020.
- CVPR 2019 Xiaoguang Han, Zhaoxuan Zhang, **Dong Du**, Mingdai Yang, Jingming Yu, Pan Pan, Xin Yang, Ligang Liu, Zixiang Xiong, Shuguang Cui. **Deep Reinforcement Learning of Volume-Guided Progressive View Inpainting for 3D Point Scene Completion from a Single Depth Image**. IEEE Conference on Computer Vision and Pattern Recognition, 2019 (Oral).
- TVCG 2018 Xiaoguang Han, Kangcheng Hou, **Dong Du**, Yuda Qiu, Shuguang Cui, Kun Zhou, Yizhou Yu. **CaricatureShop: Personalized and Photorealistic Caricature Sketching**. IEEE Transactions on Visualization and Computer Graphics, 2018.
- i3D 2018 Wanchao Su, **Dong Du**, Xin Yang, Shizhe Zhou, Hongbo Fu. **Interactive Sketch-Based Normal Map Generation with Deep Neural Networks**. ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games, 2018.
- JUSTC 2017 **Dong Du**, Shiwei Wang, Ligang Liu. **The Research and Development of Dynamic Creatures Design Based on Mechanics**. Journal of University of Science and Technology of China, 2017.

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## Selected Projects

- 2022 **SketchMetaFace: A Learning-based Sketching Interface for Free-style and High-fidelity 3D Character Face Modeling**, *Submitted to TVCG 2022*.
- An easy-to-use sketching system designed for amateur users to create free-style and high-fidelity 3D character faces in minutes using 2D curvature-aware strokes.
- 2022 **PIFu for the Real World: A Self-supervised Framework to Reconstruct Dressed Human from Single-view Images**, *Submitted to TIP*.
- An end-to-end self-supervised network using depth-guided volume-/surface-aware SDF learning to improve the generalization of PIFu(HD) by utilizing abundant and diverse in-the-wild images.
- 2022 **3D Keypoint Estimation using Implicit Representation Learning**, *Submitted to TVCG*.
- An implicit representation for unfixed 3D keypoint estimation of general objects with various topology and geometry, which is robust to diverse inputs, e.g., complete/partial point clouds, single-view images.
- 2020 **Portrait-IDE: Implicit-guided accurate single-view Depth Estimation for human portraits**.
- A learning-based method is proposed to integrate implicit shape learning into the depth generation on image space, and achieves high-fidelity and efficient single-view depth estimation for human portraits.
- 2017 **Sketch2Model: Volumetric Modeling and Segmentation with Single View Sketching**.
- A local-to-global/coarse-to-fine solution is proposed for inferring 3D volumetric shapes from single-view sketch input by learning part generation and part assembly simultaneously.

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## Academic Services

- 2020-2023 Journal Reviewer of C&G, TVCJ.  
Conference Reviewer of CVPR, ECCV, IJCAI, BMVC, VR, 3DV.

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## Skills

- Language Chinese, English.  
Coding Familiar with C++, Python.  
Framework Familiar with deep learning frameworks, such as PyTorch, TensorFlow, and Caffe.

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## References

- Ligang Liu** Full Professor at University of Science and Technology of China, my Ph.D. supervisor. Email: lgliu@ustc.edu.cn
- Hongbo Fu** Full Professor at City University of Hong Kong, my academic advisor in 2017-2018. Email: hongbofu@cityu.edu.hk

**Xiaoguang Han** Assistant Professor at the Chinese University of Hong Kong, Shenzhen, my academic advisor in 2018-2023. Email: [hanxiaoguang@cuhk.edu.cn](mailto:hanxiaoguang@cuhk.edu.cn)

**Junhui Hou** Associate Professor at City University of Hong Kong, my postdoc advisor in 2023-2024. Email: [jh.hou@cityu.edu.hk](mailto:jh.hou@cityu.edu.hk)