Shangzhe Wu

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Education

2018 - 2022 | **Doctor of Philosophy (DPhil)**, *University of Oxford*
Advisors: Andrea Vedaldi and Christian Rupprecht, Visual Geometry Group
Thesis: "Unsupervised Learning of 3D Objects in the Wild"
Thesis Committee: Andrew Zisserman, Vincent Sitzmann

2014 - 2018 | **Bachelor of Science (BSc)**, *Hong Kong University of Science and Technology*
Double Major in Computer Science; and in Risk Management and Business Intelligence

Professional Experiences

since 2023 | Postdoctoral Researcher at *Stanford University*
Advisor: Jiajun Wu, Stanford Vision and Learning Lab

2020 | Research Intern at *Google Research*, NYC/London
Mentors: Angjoo Kanazawa, Ameesh Makadia, Richard Tucker, Jiajun Wu, Noah Snavely

Awards

2023 | BMVA Sullivan Doctoral Thesis Prize
– | Outstanding Reviewer, NeurIPS 2023, 2022; ECCV 2022; CVPR 2021
2020 | Best Paper Award, CVPR 2020
2018 | Facebook Research Scholarship (3.5yr DPhil at Oxford)
2018 | HKUST Academic Achievement Medal (highest academic honor, top 1%)
2013 | First Prize in The Chinese High School Physics Olympiad, Provincial Level

Invited Talks

Learning 3D Fauna and Flora in the Wild

2024 | Carnegie Mellon University
2023 | Cornell Tech
2023 | University of Pennsylvania

Learning Dynamic 3D Objects in the Wild

2023 | Bay Area Computer Vision Day, Stanford
2023 | BIRS Workshop on 3D Generative Models, Banff, Canada
2023 | Johns Hopkins University
2023 | Chinese University of Hong Kong
2023 | University of Hong Kong
2022 | Peking University
2022 | Northwestern Polytechnical University, China

Unsupervised Learning of 3D Objects in the Wild

2022 | University of California, San Diego
2021 | MIT Vision and Graphics Seminar
2021 | Stanford University
2021 | Nanyang Technological University
2021 | Fudan University
2020 | École des Ponts ParisTech
2020 | 2nd Jittor Workshop on Deep Learning, Tsinghua University
2020 | University of Toronto

2020	Graphics And Mixed Environment Seminar (GAMES)
2020	University of Cambridge
2020	CVPR Workshop on Fair, Data-Efficient and Trusted Computer Vision

Students Advised

2024	Husam Jubran - Master, visiting at Stanford University
2024	Haojun Qiu - Bachelor, visiting at Stanford University
2023	Mason Wang - Master, Stanford University
2023	Sharon Lee - Master, Stanford University
2023	Zizhang Li - Master, visiting at Stanford University
2022	Minghao Yin - PhD, University of Hong Kong
2022	Dor Litvak - Master, visiting at Stanford University, now PhD at UT Austin
2022	Ruining Li - Bachelor, University of Oxford, now PhD at Oxford
2021	Keqiang Sun - PhD, Chinese University of Hong Kong
2021	Felix Wimbauer - Master, University of Oxford, now PhD at TUM
2021	Jan-Hendrik Ruettinger - Master, visiting at University of Oxford

Academic Services

Area Chair

ECCV 2024, 3DV 2024

Reviewer

CVPR, ICCV, ECCV, NeurIPS, ICLR, SIGGRAPH, Eurographics, IJCV, TMLR, TIP, TVCG

Workshop / Tutorial Organizer

2024	CVPR Workshop on "CV4Animals: Computer Vision for Animal Behavior Tracking and Modeling"
2022	ECCV Workshop on "Neural Geometry and Rendering: Advances and the Common Objects in 3D Challenge"
2021	ICCV Workshop on "Unsup3D: Unsupervised 3D Learning in the Wild"

Publications

*(* denotes equal contribution. † denotes equal advising.)*

[1] Tomas Jakab*, Ruining Li*, Shangzhe Wu, Christian Rupprecht, and Andrea Vedaldi. "Farm3D: Learning Articulated 3D Animals by Distilling 2D Diffusion". In: *International Conference on 3D Vision (3DV)*. 2024.

[2] Sharon Lee*, Yunzhi Zhang*, Shangzhe Wu, and Jiajun Wu. "Language-Informed Visual Concept Learning". In: *International Conference on Learning Representations (ICLR)*. 2024.

[3] Zizhang Li*, Dor Litvak*, Ruining Li, Yunzhi Zhang, Tomas Jakab, Christian Rupprecht, Shangzhe Wu†, Andrea Vedaldi†, and Jiajun Wu†. "Learning the 3D Fauna of the Web". In: *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*. 2024.

[4] Mason Wang*, Ryosuke Sawata*, Samuel Clarke, Ruohan Gao, Shangzhe Wu, and Jiajun Wu. "Hearing Anything Anywhere". In: *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*. 2024.

[5] Minghao Yin, Shangzhe Wu, and Kai Han. "IBD-SLAM: Learning Image-Based Depth Fusion for Generalizable SLAM". In: *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*. 2024.

[6] Zhengfei Kuang*, Yunzhi Zhang*, Hong-Xing Yu, Samir Agarwala, Shangzhe Wu, and Jiajun Wu. "Stanford-ORB: A Real-World 3D Object Inverse Rendering Benchmark". In: *Neural Information Processing Systems (NeurIPS) Datasets and Benchmarks Track*. 2023.

[7] Shangzhe Wu*, Tomas Jakab*, Christian Rupprecht, and Andrea Vedaldi. "DOVE: Learning Deformable 3D Objects by Watching Videos". In: *International Journal of Computer Vision (IJCV)* (2023).

[8] Shangzhe Wu*, Ruining Li*, Tomas Jakab*, Christian Rupprecht, and Andrea Vedaldi. "MagicPony: Learning Articulated 3D Animals in the Wild". In: *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*. 2023.

[9] Keqiang Sun, Shangzhe Wu, Zhaoyang Huang, Ning Zhang, Quan Wang, and Hongsheng Li. "CGOF++: Controllable 3D Face Synthesis with Conditional Generative Occupancy Fields". In: *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)* (2023).

[10] Yunzhi Zhang, Shangzhe Wu, Noah Snavely, and Jiajun Wu. "Seeing a Rose in Five Thousand Ways". In: *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*. 2023.

[11] Keqiang Sun*, Shangzhe Wu*, Zhaoyang Huang, Ning Zhang, Quan Wang, and Hongsheng Li. "Controllable 3D Face Synthesis with Conditional Generative Occupancy Fields". In: *Advances in Neural Information Processing Systems (NeurIPS)*. 2022.

[12] Felix Wimbauer, Shangzhe Wu, and Christian Rupprecht. "De-rendering 3D Objects in the Wild". In: *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*. 2022.

[13] Shangzhe Wu, Ameesh Makadia, Jiajun Wu, Noah Snavely, Richard Tucker, and Angjoo Kanazawa. "De-rendering the World's Revolutionary Artefacts". In: *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*. 2021.

[14] Shangzhe Wu, Christian Rupprecht, and Andrea Vedaldi. "Unsupervised Learning of Probably Symmetric Deformable 3D Objects from Images in the Wild". In: *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)* (2021).

[15] Tim Y. Tang, Daniele De Martini, Shangzhe Wu, and Paul Newman. "Self-Supervised Learning for Using Overhead Imagery as Maps in Outdoor Range Sensor Localization". In: *International Journal of Robotics Research (IJRR)* (2021).

[16] Shangzhe Wu, Christian Rupprecht, and Andrea Vedaldi. "Unsupervised Learning of Probably Symmetric Deformable 3D Objects from Images in the Wild". In: *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*. 2020. **(Best Paper Award)**.

[17] Tim Y. Tang, Daniele De Martini, Shangzhe Wu, and Paul Newman. "Self-Supervised Localisation between Range Sensors and Overhead Imagery". In: *Robotics: Science and Systems (RSS)*. 2020.

[18] Yongyi Lu, Shangzhe Wu, Yu-Wing Tai, and Chi-Keung Tang. "Image Generation from Sketch Constraint Using Contextual GAN". In: *European Conference on Computer Vision (ECCV)*. 2018.

[19] Shangzhe Wu, Jiarui Xu, Yu-Wing Tai, and Chi-Keung Tang. "Deep High Dynamic Range Imaging with Large Foreground Motions". In: *European Conference on Computer Vision (ECCV)*. 2018.

Preprints

[20] Keqiang Sun*, Dor Litvak*, Yunzhi Zhang, Hongsheng Li, Jiajun Wu†, and Shangzhe Wu†. "Ponymation: Learning 3D Animal Motions from Unlabeled Online Videos". In: *arXiv preprint arXiv:2312.13604* (2023).

[21] Zirui Wang, Shangzhe Wu, Weidi Xie, Min Chen, and Victor Adrian Prisacariu. "NeRF−−: Neural Radiance Fields Without Known Camera Parameters". In: *arXiv preprint arXiv:2102.07064* (2021).