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Gengshan Yang

Education

Jul 2023 **Ph.D. in Robotics**, *Carnegie Mellon University*, Advisor: Deva Ramanan
Thesis: Building 4D Models of Objects and Scenes from Monocular Videos

Aug 2019 **M.S. in Robotics**, *Carnegie Mellon University*, Advisor: Deva Ramanan
Thesis: Volumetric Correspondence Networks for Stereo Matching and Optical Flow

Jun 2017 **B.E. in Automation**, *Xi'an Jiaotong University*

Employment

Sep 2024– **World Labs**, *San Francisco*
Member of Technical Staff

2023–2024 **Codec Avatar Labs at Meta**, *Pittsburgh*
Research Scientist

2021 **Facebook AI Research**, *Menlo Park*
Research Intern, Hosted by Hanbyul Joo

2020–2021 **Google Research**, *Cambridge*
Research Intern, Hosted by Deqing Sun and Varun Jampani

2018 **Argo AI**, *Pittsburgh*
Research Intern

Publications

[1] DressRecon: Freeform 4D Human Reconstruction from Monocular Video.
Jeff Tan, Donglai Xiang, Shubham Tulsiani, Deva Ramanan, **Gengshan Yang**.
International Conference on 3D Vision (3DV), 2025.

[2] Tactile DreamFusion: Exploiting Tactile Sensing for 3D Generation.
Ruihan Gao, Kangle Deng, **Gengshan Yang**, Wenzhen Yuan, Jun-Yan Zhu.
Conference on Neural Information Processing Systems (NeurIPS), 2024.

[3] SplaTAM: Splat, Track & Map 3D Gaussians for Dense RGB-D SLAM.
Nikhil Keetha, Jay Karhade, Krishna Murthy Jatavallabhula, **Gengshan Yang**, Sebastian Scherer, Deva Ramanan, Jonathon Luiten.
IEEE Computer Vision and Pattern Recognition (CVPR), 2024.

[4] SLoMo: A General System for Legged Robot Motion Imitation from Casual Videos.
John Z. Zhang, Shuo Yang, **Gengshan Yang**, Arun Bishop, Swaminathan Gurumurthy, Deva

Ramanan, Zachary Manchester.
IEEE Robotics and Automation Letters (RA-L), 2023.

[5] Physically Plausible Reconstruction from Monocular Videos.
Gengshan Yang, Shuo Yang, John Zhang, Zachary Manchester, Deva Ramanan.
International Conference on Computer Vision (ICCV), 2023. **Oral Presentation**.

[6] Total-Recon: Deformable Scene Reconstruction for Embodied View Synthesis.
Chonghyuk Song, **Gengshan Yang**, Kangle Deng, Jun-Yan Zhu, Deva Ramanan.
International Conference on Computer Vision (ICCV), 2023.

[7] Reconstructing Animatable Categories from Videos.
Gengshan Yang, Chaoyang Wang, N Dinesh Reddy, Deva Ramanan.
IEEE Computer Vision and Pattern Recognition (CVPR), 2023.

[8] Distilling Neural Fields for Real-time Articulated Shape Reconstruction.
Jeff Tan, **Gengshan Yang**, Deva Ramanan.
IEEE Computer Vision and Pattern Recognition (CVPR), 2023.

[9] 3D-aware Conditional Image Synthesis.
Kangle Deng, **Gengshan Yang**, Deva Ramanan, Jun-Yan Zhu.
IEEE Computer Vision and Pattern Recognition (CVPR), 2023.

[10] BANMo: Building Animatable 3D Neural Models from Many Casual Videos.
Gengshan Yang, Minh Vo, Natalia Neverova, Deva Ramanan, Andrea Vedaldi, Hanbyul Joo.
IEEE Computer Vision and Pattern Recognition (CVPR), 2022. **Oral Presentation**.

[11] ViSER: Video Surface Embeddings for Articulated 3D Shape Reconstruction.
Gengshan Yang, Deqing Sun, Varun Jampani, Daniel Vlasic, Forrester Cole, Ce Liu, Deva Ramanan.
Conference on Neural Information Processing Systems (NeurIPS), 2021. **Spotlight**.

[12] NeRS: Neural Reflectance Surfaces for Sparse-view 3D Reconstruction in the Wild.
Jason Y. Zhang, **Gengshan Yang**, Shubham Tulsiani*, Deva Ramanan*.
Conference on Neural Information Processing Systems (NeurIPS), 2021.

[13] LASR: Learning Articulated Shape Reconstruction from a Monocular Video.
Gengshan Yang, Deqing Sun, Varun Jampani, Daniel Vlasic, Forrester Cole, Huiwen Chang, Deva Ramanan, William T. Freeman, Ce Liu.
IEEE Computer Vision and Pattern Recognition (CVPR), 2021.

[14] Learning to Segment Rigid Motions from Two Frames.
Gengshan Yang, Deva Ramanan.
IEEE Computer Vision and Pattern Recognition (CVPR), 2021.

[15] Upgrading Optical Flow to 3D Scene Flow through Optical Expansion.
Gengshan Yang, Deva Ramanan.
IEEE Computer Vision and Pattern Recognition (CVPR), 2021. **Oral Presentation**.

[16] Volumetric Correspondence Networks for Optical Flow.
Gengshan Yang, Deva Ramanan.
Conference on Neural Information Processing Systems (NeurIPS), 2021.

[17] Hierarchical Deep Stereo Matching on High-resolution Images.
Gengshan Yang, Joshua Manela, Michael Happold, Deva Ramanan.
IEEE Computer Vision and Pattern Recognition (CVPR), 2021.

[18] Inferring Distributions Over Depth from a Single Image.
Gengshan Yang, Peiyun Hu, Deva Ramanan.
International Conference on Intelligent Robots and Systems (IROS), 2019.

[19] Towards Hand-dominated Activity Recognition Systems with Wristband-interaction Behavior Analysis.
Chao Shen, Yufei Chen, **Gengshan Yang**, and Xiaohong Guan.
IEEE Transactions on Systems, Man, and Cybernetics: Systems, 2018.

Awards and Honors

2023 AI Rising Stars, Michigan AI Symposium 2023

2023 Doctoral Consortium, CVPR 2023

2021 Qualcomm Innovation Fellowship

2014 – 2016 National Scholarship of China

Teaching

Spring 2021 Graduate Computer Vision *Teaching Assistant, CMU*

Fall 2020 Geometry-based Methods for Computer Vision *Teaching Assistant, CMU*

Service

2024 Guest Editor *IJCV Special Issue on Computer Vision for Animal Tracking and Modeling*

2019– Conference Reviewer *CVPR, ECCV, ICCV, NeurIPS, ICLR, IROS, ICRA*

2019– Journal Reviewer *T-PAMI, IJCV, TMLR, RA-L, CVIU*

2019–2021 Graduate Admissions Committee *Robotics Institute, CMU*

2020–2021 Undergrad AI Mentoring Program *School of Computer Science, CMU*

Workshop

2024 **4th Workshop on CV4Animals**, *CVPR 2024*

Talks

2024 **Stability AI**, *Hosted by Varun Jampani*
Towards Generative 3D World Models from Videos

2024 **UIUC**, *External Speaker Series, Hosted by Yu-Xiong Wang*
Towards 4D Reconstruction in the Wild

2024 **University of Maryland**, *CS Seminar*
Towards 4D Reconstruction in the Wild

2024 **UMich**, *CSE Seminar*
Towards 4D Reconstruction in the Wild

2024 **TTIC**, *Talks at TTIC*
Towards 4D Reconstruction in the Wild

2023 **UMich AI Symposium**, *Lightining Talk*
Towards 4D Reconstruction in the Wild

2023 **AIT Lab, ETH Zürich**, *Hosted by Jie Song*
Building 4D Models of Objects and Scenes from Videos

2023 **Stanford**, *Hosted by Jiajun Wu*
Capture A Dynamic 3D World from Casual Videos

2023 **BAIR, UC Berkeley**, *Hosted by Angjoo Kanazawa*
Capture A Dynamic 3D World from Casual Videos

2023 **NVIDIA**, *Hosted by Chen-Hsuan Lin*
Capture A Dynamic 3D World from Casual Videos

2023 **Epics Games**, *Hosted by Christoph Lassner*
Capture A Dynamic 3D World from Casual Videos

2023 **Boston Dynamics AI Institute**, *Hosted by Jiuguang Wang*
Capture A Dynamic 3D World from Casual Videos

2023 **Reality Labs at Meta**, *External Speaker Series, Hosted by Giljoo Nam*
Capture A Dynamic 3D World from Casual Videos

2022 **RPAD, Carnegie Mellon University**, *Hosted by Wenxuan Zhou, David Held*
Building Animatable 3D Neural Models from Many Casual Videos

2022 **Cornell Tech**, *Hosted by Qianqian Wang, Noah Snavley*
Building Animatable 3D Neural Models from Many Casual Videos

2022 **KAIR, UC Berkeley**, *Hosted by Angjoo Kanazawa*
Building Animatable 3D Neural Models from Many Casual Videos

2022 **VGG, Oxford**, *Hosted by Shangzhe (Elliott) Wu*
Building Animatable 3D Neural Models from Many Casual Videos

2022 **Baidu**, *Hosted by Errui Ding*
Building Animatable 3D Neural Models from Many Casual Videos

2021 **Carnegie Mellon University**, *Hosted by Adam Harley, Katerina Fragkiadaki*
Video-Specific Surface Embeddings for Articulated 3D Shape Reconstruction

2020 **Sun Yat-Sen University**, *Hosted by Yulan Guo*
Upgrading Optical Flow to 3D for Monocular Dynamic Scene Perception