MIANLUN ZHENG

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EDUCATION

University of Southern California *08/2018 - 08/2024(expected)*
Ph.D candidate in Computer Graphics, GPA: 4.0/4.0
Advisor: Professor Jernej Barbič
Research focus: Digital humans, AI for physics-based animation, haptics

Wuhan University *09/2015 - 06/2018*
Master in Computer Science, GPA: 3.81/4.0
Advisor: Professor Zhiyong Yuan

Wuhan University *09/2011 - 06/2015*
Bachelor in Computer Science, GPA: 3.69/4.0

PUBLICATIONS

Ph.D. Thesis: Multi-Resolution Real-Time Deep Shape Approximation. (working in progress)
a) A learning-based shape deformation technique for skeleton-driven characters.
b) Hard real-time rates, **under 1 millisecond** for mesh with ∼**70K** vertices.
c) Substantial memory reduction.

Mianlun Zheng, Jernej Barbič. **Multi-Resolution Real-Time Deep Pose-Space Deformation**, ACM SIGGRAPH Asia 2024. (accepted to journal track)

Mianlun Zheng*, Bohan Wang*, Jingtao Huang, Jernej Barbič. **Simulation of Hand Anatomy Using Medical Imaging**, ACM Transactions on Graphics 41(6) (SIGGRAPH Asia 2022). (*equal first authors)

Shihan Lu, Mianlun Zheng, Matthew C. Fontaine, Stefanos Nikolaidis, Heather Culbertson. **Preference-Driven Texture Modeling Through Interactive Generation and Search**, IEEE Transactions on Haptics, 2022, 15(3): 508-520. (Best Paper Award Finalist of IEEE Transactions on Haptics in 2022 (one of two finalists))

Mianlun Zheng, Yi Zhou, Duygu Ceylan, Jernej Barbič. **A Deep Emulator for Secondary Motion of 3D Characters**, CVPR, 2021. (Oral Presentation, top 4% of submissions)

Bohan Wang*, Mianlun Zheng*, Jernej Barbič. **Adjustable Constrained Soft-Tissue Dynamics**, Pacific Graphics 2020 and Computer Graphics Forum, 39(7), 2020. (*equal first authors) (the only Best Paper Award of both PG2020 and PG2021).

Mianlun Zheng, Danyong Zhao, Jernej Barbič. **Evaluating the Efficiency of Six-DoF Haptic Rendering-Based Virtual Assembly Training**, IEEE Transactions on Haptics, 2021, 14(1): 212-224.

Qianqian Tong, Zhiyong Yuan, Xiangyun Liao, Mianlun Zheng, Tianchen Yuan, Jianhui Zhao. **Magnetic Levitation Haptic Augmentation for Virtual Tissue Stiffness Perception**. IEEE Transactions on Visualization and Computer Graphics, 2018, 24(12): 3123-3136.

Mianlun Zheng, Zhiyong Yuan, Qianqian Tong, Guian Zhang, Weixu Zhu. **A Novel Unconditionally Stable Explicit Integration Method for Finite Element Method**. Visual Computer, 2018, 34(5):721-733.

Mianlun Zheng, Zhiyong Yuan, Weixu Zhu, Guian Zhang. **A Fast Mass Spring Model Solver for High-resolution Elastic Objects.** Simulation: Transactions of the Society for Modeling and Simulation International, 2017, 93(10): 797-807.

Qianqian Tong, Zhiyong Yuan, Xiangyun Liao, Mianlun Zheng, Weixu Zhu, Guian Zhang, Munan Ning. **A joint multi-scale convolutional network for fully automatic segmentation of the left ventricle**. IEEE International Conference on Image Processing (ICIP), 2017.

Qianqian Tong, Zhiyong Yuan, Mianlun Zheng, Xiangyun Liao, Weixu Zhu, Guian Zhang. **A novel nonlinear parameter estimation method of soft tissues**. Genomics, proteomics & bioinformatics 15.6 (2017): 371-380.

Qianqian Tong, Zhiyong Yuan, Mianlun Zheng, Weixu Zhu, Guian Zhang, Xiangyun Liao. **A Novel Magnetic Levitation Haptic Device for Augmentation of Tissue Stiffness Perception**. Proceedings of the 22nd ACM Conference on Virtual Reality Software and Technology. ACM, 2016: 143-152. (Best student paper award).

PATENTS

Duygu Ceylan, Mianlun Zheng and Yi Zhou. Predicting Secondary Motion of Multidimensional Objects Based on Local Patch Features. U.S. Non-provisional Patent, No. 11830138, issued on 11/28/2023.

Shihan Lu, Heather Culbertson, Matthew Fontaine, and Mianlun Zheng. Interactive Texture Generation and Search System Driven by Human Preference. U.S. Provisional Patent Application No. 11972052, issued on 04/30/2024.

EXPERIENCE

Meta Reality Labs, Zurich, Switzerland *05/2023 - 08/2023*
Research intern
Manager: Dr. Ryan Goldade
Topic: Learning-based human facial expression modeling; differentiable simulation.

Meta Reality Labs, Pittsburgh, USA *05/2022 - 08/2022*
Research intern
Managers: Dr. Breannan Smith and Dr. Javier Romero
Topic: Loose and dynamic clothing tracking using physical priors.

Meta Reality Labs, Sausalito, USA *05/2021 - 08/2021*
Research intern
Manager: Dr. Tuur Styuck
Topic: Virtual human body simulation and its interaction with the tight-fitting cloth.

Adobe Research, San Jose, USA *05/2020 - 08/2020*
Research intern
Managers: Dr. Yi Zhou and Dr. Duygu Ceylan
Topic: Learning-based 3D character dynamics (secondary motion) modeling.

Tencent America, Los Angeles, USA *05/2019 - 08/2019*
Research intern
Managers: Dr. Bo Yang and Dr. Ming Gao
Topic: Learning-based snow simulation using the Material Point Method.

SKILLS

Languages: C/C++, Python/Pytorch, Pybind.
Tools: Maya, Meshlab, Houdini, Git.

TEACHING

CSCI 585 Database Systems	*Summer 2024*
CSCI 520 Computer Animation and Simulation	*Spring 2024*
CSCI 585 Database Systems	*Fall 2023*
CSCI 420 Computer Graphics	*Spring 2023*
CSCI 585 Database Systems	*Fall 2022*
CSCI 520 Computer Animation and Simulation	*Spring 2022*
CSCI 520 Computer Animation and Simulation	*Spring 2021*
CSCI 520 Computer Animation and Simulation	*Spring 2020*
CSCI 585 Database Systems	*Spring 2019*

AWARDS

USC Provost Top Off Travel/Research Award	*2022*
2022 Meta PhD Research Fellowship finalist	*2022*
USC Provost Fellowship	*2018-2022*
Pacific Graphics 2020 and 2021 Best paper award	*2021, 2020*
Wuhan University The Second Prize Scholarship	*2016, 2014*
VRST'2016 Best Student Paper Award	*2016*
National Scholarship (China)	*2015, 2012*
Outstanding Bachelor's Degree Thesis (Hubei Province, China)	*2015*
Meritorious Winner in Mathematical Contest in Modeling (MCM)	*2015*
First Prize in The 7th National College Students Information Security Contest of China	*2015*
Wuhan University Merit Student	*2013, 2012*
Huang Zhangren Alumni Scholarship	*2013*