

# MIANLUN ZHENG

Meta Reality Labs ◇ Pittsburgh, PA USA

mianlun.zheng@gmail.com ◇ Webpage: <https://zhengmianlun.github.io>

## EDUCATION

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**University of Southern California** 08/2018 - 10/2024

Ph.D. in Computer Graphics, GPA: 4.0/4.0

Advisor: Professor Jernej Barbič

*Research focus:* Digital humans, AI animation, physics-based simulation, and 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

## EXPERIENCE

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**Meta Reality Labs**, Pittsburgh, USA 10/2024 - present

*Postdoctoral research scientist*

Working on generative photorealistic Codec Avatars and its mobilization.

**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.

## PUBLICATIONS

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Ph.D. Thesis: **Real-time Simulation of Hand Anatomy Using Medical Imaging**. Department of Computer Science, University of Southern California, October 2024.

Mianlun Zheng, Jernej Barbič. **Multi-Resolution Real-Time Deep Pose-Space Deformation**, ACM Transactions on Graphics 43(6) (SIGGRAPH Asia 2024).

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

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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 human preference driven virtual texture generation and search, and haptic feedback systems and methods. U.S. Provisional Patent Application No. 11972052, issued on 04/30/2024.

## SKILLS

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Languages: C/C++, Python/Pytorch, Pybind.

Tools: Maya, Meshlab, Houdini, Git.

## TEACHING

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

## REVIEWS

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Eurographics 2020, The Visual Computer, IMWUT 2023, ACM SIGGRAPH Asia 2024

## AWARDS

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