

# MIANLUN ZHENG

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## EDUCATION

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### 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

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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\*, Bohan Wang\*, Jingtao Huang, Jernej Barbič. **Simulation of Hand Anatomy Using Medical Imaging**, ACM 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, Muanan 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 Texture Generation and Search System Driven by Human Preference. U.S. Provisional Patent Application No. 11972052, issued on 04/30/2024.

## EXPERIENCE

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**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.

## TEACHING

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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>

## 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>