Lizhou Cao

Ph.D. Candidate · Computing and Information Sciences

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Research Interests

Fundamental Computational Research for Game Content Generation
Applied Research related to Gaming Scenarios
Visual Computing, Immersive Technology, Gamification, and Multimodal interaction

Education

Rochester Institute of Technology   *Rochester, New York, USA*
Ph.D. in Computing and Information Sciences   *May 2024 (Expected Graduation)*
- Dissertation: Hierarchical Spherical Parameterization and Feature Alignment for Morphologically Varied Character Generation
- School of Interactive Games and Media

University of Alabama in Huntsville   *Huntsville, Alabama, USA*
M.S in Computer Science   *May 2019*

Beijing Institute of Technology   *Beijing, China*
M.E in Software Engineering   *June, 2015*

Beijing Institute of Technology   *Beijing, China*
B.E in Software Engineering (Digital Media)   *June, 2013*

Professional Experience

2022-present	**Adjunct Instructor**, School of Interactive Games and Media, Rochester Institute of Technology
2019-2022	**Graduate Research Assistant**, Golisano College of Computing and Information Sciences, Rochester Institute of Technology
Summer 2022	**Game/Media Developer (Research CO-OP)**, MAGIC Spell Studios, Rochester Institute of Technology
2016-2019	**Graduate Research Assistant**, Computer Science Department, University of Alabama in Huntsville
2014-2015	**Adjunct Instructor**, Beijing Film Academy
2013-2015	**Graduate Research Assistant**, Beijing Institute of Technology

Publications

Peer-Reviewed Journal Articles

[J7] Huadong Zhang, **Lizhou Cao**, Gel Howell, David Schwartz, and Chao Peng , "An Educational Virtual Reality Game for Learning Historical Events", Virtual Reality, 1-15, Springer, 2023. (link)

[J6] **Lizhou Cao**, Huadong Zhang, Chao Peng, and Jeffery Hansberger, "Real-time Multimodal Interaction in Virtual Reality - a Case Study with a Large Virtual Interface", Multimedia Tools and Applications, Springer, 2023. (link)

[J5] Mingming Fan, Vinita Tibdewal, Qiwen Zhao, **Lizhou Cao**, Chao Peng, Runxuan Shu, and Yujia Shan, "Older Adults' Concurrent and Retrospective Think-Aloud Verbalizations for Identifying User Experience Problems of VR Games", Interacting with Computers, iwac039, Oxford University Press, January 2023. (link)

[J4] **Lizhou Cao**, Chao Peng, and Yangzi Dong, "Ellic's Exercise Class: Promoting Physical Activities During Exergaming with Immersive Virtual Reality", Virtual Reality, Vol. 25, 597-612, Springer, 2021. (link)

[J3] Vaidyanath Areyur Shanthakumar, Chao Peng, Jeffrey Hansberger, **Lizhou Cao**, Sarah Meacham, and Victoria Blakley, "Design and Evaluation of a Hand Gesture Recognition Approach for Real-Time Interactions", Multimedia Tools and Applications, Springer, Vol. 79, pp. 17707–17730, July 2020. (link)

[J2] **Lizhou Cao**, Chao Peng, and Jeffrey T. Hansberger, "Usability and Engagement Study for A Serious Virtual Reality Game of Lunar Exploration Missions", Journal of Informatics (A Special Issue: Gamification and Advanced Technology to Enhance Motivation in Education), MDPI, ISSN 22279709, Vol. 6, Issue 4, Article 44, 16 pages, October 2019. (link)

[J1] Chao Peng, **Lizhou Cao**, and Sabin Timalsena, "Gamification of Apollo Lunar Exploration Missions for Learning Engagement", Entertainment Computing, Elsevier, Vol. 19, pp. 53-64, March 2017. (link)

Peer-Reviewed Conference Papers

[C10] Huadong Zhang, **Lizhou Cao**, and Chao Peng, "Spherical Parametric Measurement for Continuous and Balanced Mesh Segmentation", High-Performance Graphics - Symposium Papers, 2023. (link)

[C9] **Lizhou Cao**, Jackson Shuminski, Huadong Zhang, Pruthviraj Solanki, David Long, David Schwartz, Ihab Mardini, Chao Peng, "Multi-User VR Experience for Creating and Trading Non-Fungible Tokens", HCI International, 2023. (link)

[C8] **Lizhou Cao**, Chao Peng, "Hierarchical Cross-Parameterization for the Morphing of Deforming Meshes", ACM SIGGRAPH Poster, pp. 1-2, 2022. (link)

[C7] Chao Peng, Yangzi Dong, **Lizhou Cao**, "Real-Time Bimanual Interaction Across Virtual Workspaces", The International Conference on Human-Computer Interaction, pp. 338-356, 2022. (Best Paper Award) (link)

[C6] Huadong Zhang, **Lizhou Cao**, Gel Howell, Chao Peng, "VR Education on Historic Lunar Roving Missions", 2022 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW), pp. 612-613, Christchurch, New Zealand, March 12-16, 2022. (link)

[C5] **Lizhou Cao**, Chao Peng, and Jeffrey T. Hansberger, "A Large Curved Display System in Virtual Reality for Immersive Data Interaction", IEEE Games, Entertainment, Media Conference (GEM), pp. 1-4, New Haven, CT, June 18-21, 2019. (link)

[C4] Jeffrey T. Hansberger, Chao Peng, Victoria Blakely, Sarah Meacham, **Lizhou Cao**, and Nicholas Diliberti, "A Multimodal Interface for Virtual Information Environments", in the Proceedings of The International Conference on Human-Computer Interaction, Springer, pp.59-70, Orlando, Florida, July 26-31, 2019. (link)

[C3] Chao Peng, Jeffrey Hansberger, Vaidyanath Areyur Shanthakumar, Sarah Meacham, Victoria Blakley, and **Lizhou Cao**, "A Case Study of User Experience on Hand-Gesture Video Games", IEEE Games, Entertainment, Media Conference (GEM), pp. 453-457, Galway, Ireland, August 15-17, 2018. (link)

[C2] Jeff Hansberger, Chao Peng, Shannon Mathis, Vaidyanath Areyur Shanthakumar, Sarah Meacham, **Lizhou Cao**, and Victoria Blakely, "Dispelling the Gorilla Arm Syndrome: The Viability of Prolonged Gesture Interactions", in the Proceedings of The International Conference of Human-Computer Interaction, Springer, pp. 505-520, Vancouver, BC, Canada, July 9-14, 2017. (Best Paper Award) (link)

[C1] Chao Peng, Jeff Hansberger, **Lizhou Cao**, and Vaidyanath Areyur Shanthakumar, "Hand Gesture Controls for Image Categorization in Immersive Virtual Environments", extended abstract, IEEE Virtual Reality, pp. 331-332, Los Angeles, California, USA, March 2017. (link)

Exhibitions

[E7] "Multi-User VR Experience for Creating and Trading Non-Fungible Tokens", The 8th Annual Frameless Symposium 2023, Demo Showcase, Magic Spell Studios, Rochester, New York, November 16-17, 2023. (Accepted)

[E6] "Ellic's Exercise Camp", Rochester Game Festival, Magic Spell Studios, Rochester, September 9, 2023.

[E5] "Ellic's Exercise Class", ImagineRIT, Rochester Institute of Technology, April 27, 2023. (Attracted 200+ visitors.)

[E4] "Ellic's Exercise Class", ImagineRIT, Field House, Rochester Institute of Technology, April 23, 2022. (Attracted 200+ visitors.)

[E3] "Lunar Exploration: Past", The Finalist Game Showcase at The Serious Games Showcase & Challenge (SGS&C), Orlando, Florida, Nov. 28-Dec 2, 2021. (Attracted 100+ visitors.)

[E2] "Ellic's Exercise Class: an Active VR Game for Fitness", The 4th Annual Frameless Symposium 2019, Abstract and Demo, Magic Spell Studios, Rochester, New York, November 21-22, 2019.

[E1] "Lunar Roving Adventure: A Serious VR Game of Lunar Exploration Missions", The 4th Annual Frameless Symposium 2019, Abstract and Demo, Magic Spell Studios, Rochester, New York, November 21-22, 2019.

Media Coverage

[M1] I was interviewed during the Rochester Game Festival 2023 about Ellic's Exercise Camp on September 9, 2023.

[M2] I was interviewed during the ImagineRIT 2023 about Ellic's exergame on April 29, 2023.

[M3] I was interviewed by WROC about the Lunar Exploration game on December 13, 2022.

Presentations

[P1] Invited talk, "Hierarchical Spherical Cross-parameterization for Automated 3D Character Generation", the GCCIS Ph.D. Colloquium, Rochester Institute of Technology, Rochester, New York, October 6, 2023.

[P2] Poster presentation, "Promoting Physical Activity through Virtual Reality Exergaming", Health Care Symposium 2023, Rochester, New York, May 16, 2023.

[P2] Paper presentation, "Real-Time Bimanual Interaction Across Virtual Workspaces", the International Conference of Human-Computer Interaction, Virtual, June 28, 2022

[P3] Paper presentation, "A Large Curved Display System in Virtual Reality for Immersive Data Interaction", the IEEE Games, Entertainment, Media Conference, New Haven, Connecticut, August 2019.

Teaching Experience

IGME 309 - Data Structures & Algorithms for Games & Simulations II   *Adjunct Instructor*
School of Interactive Games and Media, Rochester Institute of Technology   *Fall 2023*

IGME 209 - Data Structures & Algorithms for Games & Simulations I   *Adjunct Instructor*
School of Interactive Games and Media, Rochester Institute of Technology   *Spring 2023*

IGME 309 - Data Structures & Algorithms for Games & Simulations II   *Adjunct Instructor*
School of Interactive Games and Media, Rochester Institute of Technology   *Fall 2022*

Computer Networking for Digital Media   *Adjunct Instructor*
Department of Film Technology, Beijing Film Academy   *Fall 2014*

Professional Services

Reviewer for Computer Animation and Virtual Worlds	*Januray 2023 - Present*
Reviewer for Springer Journal on Multimedia Tools and Interaction	*September 2022 - Present*
Reviewer for Journal of Virtual Reality	*June 2023*
Reviewer for the IEEE Virtual Reality conference	*November 2022*