

Rulin Chen

Assistant Professor at **Beijing Normal-Hong Kong Baptist University (BNBU)**

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Research Interests

Computer Graphics. In particular, geometric modeling, computational design, and computational fabrication. Currently focus on developing computational methods for sustainable designs in various forms and functionalities.

Education and Working Experience

2025.9 – now	Assistant Professor	School of Culture and Creativity, BNBU
2024.8 – 2025.8	Postdoctoral Research Fellow	Computer Graphics Laboratory, SUTD
2020.9 – 2024.7	Ph.D. in Computer Graphics	Computer Graphics Laboratory, SUTD
2016.9 – 2020.7	B.S. in Electronic Information Engineering	Shantou University

Selected Publications († equal contribution)

1. Yixuan He†, **Rulin Chen**†, Bailin Deng, and Peng Song.
Computational Design of Body-supporting Assemblies.
Pacific Graphics, 2025. (under review)
2. **Rulin Chen**, Xuyang Ma, Peng Song, and Chi-Wing Fu.
Inverse Tiling of Finite Domains.
SIGGRAPH, 2025. (under review)
3. Pengyun Qiu†, **Rulin Chen**†, Peng Song, and Ying He.
Modeling Wireframe Meshes with Discrete Equivalence Classes.
IEEE Transactions on Visualization and Computer Graphics, 2025.
4. **Rulin Chen**, Pengyun Qiu, Peng Song, Bailin Deng, Ziqi Wang, and Ying He.
Masonry Shell Structures with Discrete Equivalence Classes.
ACM Transactions on Graphics (SIGGRAPH Journal-track), 2023.
5. **Rulin Chen**, Ziqi Wang, Peng Song, and Bernd Bickel.
Computational Design of High-level Interlocking Puzzles.
ACM Transactions on Graphics (SIGGRAPH Journal-track), 2022.
SIGGRAPH Best Paper Honorable Mention Award

Grants

2024 – 2027	3D Geometric Tiling for Modeling and Realization of 3D Tileable Assemblies MOE Academic Research Fund (AcRF) Tier 2, Singapore, Participant , S\$671,592
2023 – 2026	Modeling and Design of 3D Freeform Gears for Exact 3D Motion Generation MOE Academic Research Fund (AcRF) Tier 2, Singapore, Participant , S\$493,323

Teaching Experience

Semester-long Courses

2021 – 2024 **Teaching Assistant** at Graphics and Visualisation (50.017)
Students: ~ 30 undergraduate students per year

Week-long Workshops

2024 Summer **Research Mentor** at MIT Summer Geometry Initiative 2024
Mentees: 2 students without computer graphics background
Project: Modeling K-set Surfaces with Various Patterns

2022 Summer **Student Facilitator** at SUTD FACT Undergraduate Exchange Programme
Students: ~ 40 undergraduate students

Patents

1. Qian Gao, Jiahao Fang, Yanwei Huang, **Rulin Chen**, Wei Xiao, and Zhenglong Sun.
Natural Cavity Surgical Mechanical Arm, CN202010326611.0
2. Qian Gao, Wei Xiao, **Rulin Chen**, Jiahao Fang, Yanwei Huang, and Zhenglong Sun.
End Effector for Natural Orifice Surgery, CN202010250128.9
3. Jiahao Fang, Qian Gao, Yanwei Huang, Wei Xiao, **Rulin Chen**, and Zhenglong Sun.
Aircraft Luggage Loading and Unloading Robot and Control Method, CN202010231562.2
4. Qian Gao, **Rulin Chen**, Jiahao Fang, Yanwei Huang, Wei Xiao, and Zhenglong Sun.
Power Battery with Positive and Negative Electrodes of Battery Cell Welded on the Same Side, CN202010238086.7

Open-source Developments

HighLevel-Puzzle Author
A C++ based computational tool for designing high-level interlocking puzzles with user-specified level-of-difficulties.

TileableShell Author
A C++ based computational tool for modeling masonry shell structures with discrete equivalence classes with user-specified topology.

Awards

2024 **SUTD Best Ph.D. Thesis Honorable Mention Award**

2022 **SIGGRAPH 2022 Best Paper Honorable Mention Award**

2020 **SUTD Ph.D. Fellowship**

2016 – 2018 **Shantou University Sports-meeting Champion Scholarship**

Professional Services

Journal Reviewer

ACM Transactions on Graphics 2024
Computers & Graphics 2024, 2025
The Visual Computer 2023

Conference Reviewer

ACM SIGGRAPH Asia 2024
Pacific Graphics 2024
Computer Graphics International 2023

Research Activity Organizer

Co-organizer of Computational Fabrication Seminar 2021, 2022

Invited Talks

2024.6	PhD Oral Defense Public Seminar	SUTD
2024.5	Huawei Singapore Harmony Software Technology Workshop	Huawei Singapore
2023.8	Technical Paper Presentation	SIGGRAPH 2023
2022.8	Technical Paper Presentation	SIGGRAPH 2022
2022.8	Lab Demo	SIGGRAPH 2022

References

Ph.D. Advisor Dr. Peng Song, Assistant Professor at SUTD
Email: peng_song@sutd.edu.sg

Collaborator Dr. Bernd Bickel, Full Professor at ETH Zurich
Email: bernd.bickel@gmail.com

Collaborator Dr. Ying He, Associate Professor at NTU
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Collaborator Dr. Ziqi Wang, Assistant Professor at HKUST
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