RULIN CHEN

Ph.D Candidate at SUTD ◇ Personal page: linsanity81.github.io
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EDUCATION

Singapore University of Technology and Design, Ph.D Candidate 2020.9 - 2024.6(Expected)

Supervisor: Dr. Peng Song

Research interests: Computer Graphics, Geometry Processing, and Numerical Optimization

Shantou University, Bachelor of Electronic Information Engineering 2016.9 - 2020.6

Core modules: Pattern Recognition (94), Engineering Design (94), AI for Robotics (92)

PUBLICATION

Rationalization of Wireframe Meshes

Rulin Chen, Pengyun Qiu, Peng Song, Ying He

Preparing to submit to *ACM Transactions on Graphics*

Masonry Shell Structures with Discrete Equivalence Classes [code] [project page]

Rulin Chen, Pengyun Qiu, Peng Song, Bailin Deng, Ziqi Wang, Ying He

ACM Transactions on Graphics (Proc. of SIGGRAPH), 2023

Computational Design of High-level Interlocking Puzzles [code] [project page]

Rulin Chen, Ziqi Wang, Peng Song, Bernd Bickel

ACM Transactions on Graphics (Proc. of SIGGRAPH), 2022

SIGGRAPH 2022 Technical Papers Honorable Mention Award

FPGA Design of Real-time MDFD System using High-level Sysnthesis

Chuliang Wei, **Rulin Chen**, Qin Xin

IEEE Access, 2020

PROJECT EXPERIENCE

Sustainable Design of Modern Complex Building Structures 2022.3 - present

- Conduct qualitative and quantitative analysis of existing modern building construction methods.
- Propose a cost-efficient computational method for constructing masonry shell structures.
- Propose a cost-efficient computational method for constructing wireframe mesh structures.
- Demonstrate the feasibility of our proposed approach by fabricating 3D-printing prototype.

Computational Design of Interesting 3D Interlocking Toys 2020.9 - 2022.3

- Conduct qualitative and quantitative analysis of existing 3D puzzle toys.
- Propose a computational approach to design high-level interlocking puzzles, a kind of 3D puzzles.
- Demonstrate the playability of our designed puzzles through a series of user studies.

Computational Design of Medical Robots and Robot-related Applications 2019.9 - 2020.6

- Conduct a literature review on the latest medical robotic techniques.
- Develop a real-time image recognition system using FPGA for robots.
- Assist in applying for 6 robot-related US patents successfully.

PROFESSIONAL EXPERIENCE

Teaching Assistant for Computer Graphics 2021 Spring and 2022 Spring
Singapore University of Technology and Design *Singapore*

Research Assistant (Robotics) Sept 2019 - June 2020
The Chinese University of Hong Kong (Shenzhen Campus) *Shenzhen, China*

Research Assistant (FPGA) Sept 2017 - June 2019
Shantou University *Shantou, China*

PATENT

[1] Power battery with positive and negative electrodes of battery cell welded on the same side

[2] End effector for natural orifice surgery

[3] Natural orifice operation mechanical arm

[4] Natural cavity surgical mechanical arm

[5] Aircraft luggage loading and unloading robot and control method thereof

[6] Aircraft luggage loading and unloading robot

PROFESSIONAL SKILL

Programming: C/C++, Python

Software: Word, Excel, Rhino, Matlab

Language: Chinese(native), Cantonese(native), English(fluent)

RESEARCH ACTIVITY

Invited Talk for Technical Paper at SIGGRAPH 2022, 2023

Invited Lab Demo for Technical Paper at SIGGRAPH 2022

Co-organizer of Computational Fabrication Seminar 2021, 2022 [website]

Reviewer of The Visual Computer Journal, Computer Graphics International