

# RAN ZHANG

## Ph.D. in Computer Graphics & Computational Design Researcher

✉ origamidance@gmail.com  
🌐 ran-zhang.com

🏠 Prof. Dr. Helmert Straße 2-3, 14482 Potsdam, Germany  
🔗 ran-zhang-coder

🗨️ cuminflea

☎️ +49-015225154242

📍 Berlin, Germany



## EXPERIENCE

### Postdoctoral researcher

#### Hasso Plattner Institute

📅 Feb. 2021 – 📍 Berlin, Germany 🧑‍🎓 Prof. Patrick Baudisch

- Working on modeling and simulation of developable surfaces, and their application on designing cardboard furniture.

#### Institute of Science and Technology Austria (IST Austria)

📅 Oct. 2020 – Jan. 2021 📍 Klosterneuburg, Austria 🧑‍🎓 Prof. Bernd Bickel

- Built a computational design system for multistable structures that snap to multiple stable poses.

### Co-founder and technical consultant

#### Brick Studio

📅 Jun. 2020 – Jun. 2021 📍 Shenzhen, China

- Developed the world's first portrait-based lego model generation system.
- The company is already seed funded.

### Research intern

#### Microsoft Research Asia

📅 Aug. 2018 – Dec. 2018 📍 Beijing, China 🧑‍🎓 Dr. Yang Liu

- Investigated on the design space of cardboard assemblies, and proposed a FEM-based simulation method for the physics on developable surfaces.

📅 Feb. 2013 – May. 2013 📍 Beijing, China 🧑‍🎓 Dr. Xin Tong

- Developed a volumetric registration method for non-rigid 3D models.

### Visiting PhD student

#### University College London

📅 Mar. 2017 – May 2017 📍 London, UK 🧑‍🎓 Prof. Niloy Mitra

- Worked on computational fabrication of string weaving surfaces.

📅 Sep. 2016 – Oct. 2016 📍 London, UK 🧑‍🎓 Prof. Tim Weyrich

- Worked on appearance capturing of 3D printed translucent materials.

## EDUCATION

### Ph.D. in Computer Graphics

#### Institute of Science and Technology Austria (IST Austria)

📅 Sep. 2014 – Sep. 2020 📍 Klosterneuburg, Austria 🧑‍🎓 Prof. Bernd Bickel

- Worked on structure-aware computational design systems.

### M.Sc. in Electronic Engineering

#### University of Science and Technology of China

📅 Sep. 2011 – Jun. 2014 📍 Hefei, China 🧑‍🎓 Prof. Xuejin Chen & Prof. Ligang Liu

- Worked on algorithms of 3D modeling for non-rigid objects
- Developed a computational design system for mechanical linkages.

### B.Sc. in Electronic Engineering

#### Tianjin University

📅 Sep. 2007 – Jun. 2011 📍 Tianjin, China

## RESEARCH MOTTO

*"Think like an amateur, do as an expert."*

## RESEARCH INTERESTS



### Computational Design

Assisting novice users for designing sophisticated structures



### Geometry Processing

Building geometric models behind shapes, physics, and mechanisms



### Extended Reality

Share your reality in the virtual world

## TECH STACKS

C++

CUDA

Python

R

Javascript

Julia

Matlab

Latex

## PROFESSIONAL SKILLS

Computer Graphics

Geometry Processing

Machine Learning

Numerical Optimization

## AWARDS



Deecamp 2020 Grand Champion Team



EU Marie Skłodowska-Curie ITN Fellowship



SIGGRAPH 2020 Thesis Fast Forward Final List

## REFEREES

### Prof. Bernd Bickel

🏠 IST Austria

✉ bernd.bickel@ist.ac.at

🌐 berndbickel.com

### Prof. Patrick Baudisch

🏠 Hasso Plattner Institute

✉ patrick.baudisch@hpi.de

🌐 patrickbaudisch.com

# PUBLICATIONS

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- Muhammad Abdullah, Romeo Sommerfeld, Laurenz Seidel, Jonas Noack, **Ran Zhang**, Thijs Roumen, and Patrick Baudisch. “**Roadkill: Nesting Laser-Cut Objects for Fast Assembly**”. In: *Proceedings of UIST 2021* (2021).
- Oskar Elek, **Ran Zhang**, Denis Sumin, Karol Myszkowski, Bernd Bickel, Alexander Wilkie, Jaroslav Křivánek, and Tim Weyrich. “**Robust and practical measurement of volume transport parameters in solid photo-polymer materials for 3D printing**”. In: *Optics Express* 29.5 (2021), pp. 7568–7588.
- Robert Kovacs, Lukas Rambold, Lukas Fritzsche, Dominik Meier, Jotaro Shigeyama, Shohei Katakura, **Ran Zhang**, and Patrick Baudisch. “**Trusscillator: a System for Fabricating Human-Scale Human-Powered Oscillating Devices**”. In: *Proceedings of UIST 2021* (2021).
- **Ran Zhang**, Thomas Auzinger, and Bernd Bickel. “**Computational Design of Planar Multistable Compliant Structures**”. In: *ACM Trans. Graph. (Presented at SIGGRAPH Asia 2021)* (2021).
- Kazutaka Nakashima, Thomas Auzinger, Emmanuel Iarussi, **Ran Zhang**, Takeo Igarashi, and Bernd Bickel. “**CoreCavity: Interactive Shell Decomposition for Fabrication with Two-Piece Rigid Molds**”. In: *ACM Trans. Graph. (Proceedings of SIGGRAPH 2018)* 37.4 (2018), 135:1–135:13.
- Oskar Elek, Denis Sumin, **Ran Zhang**, Tim Weyrich, Karol Myszkowski, Bernd Bickel, Alexander Wilkie, and Jaroslav Křivánek. “**Scattering-Aware Texture Reproduction for 3D Printing**”. In: *ACM Trans. Graph. (Proceedings of SIGGRAPH Asia 2017)* 36.6 (Nov. 2017).
- **Ran Zhang**, Thomas Auzinger, Duygu Ceylan, Wilmot Li, and Bernd Bickel. “**Functionality-aware Retargeting of Mechanisms to 3D Shapes**”. In: *ACM Trans. Graph. (Proceedings of SIGGRAPH 2017)* 36.4 (July 2017).
- **Ran Zhang**<sup>\*</sup>, Shiwei Wang<sup>\*</sup>, Xuejin Chen, Chao Ding, Luo Jiang, Jie Zhou, and Ligang Liu. “**Designing Planar Deployable Objects via Scissor Structures**”. In: *IEEE Transactions on Visualization and Computer Graphics* 22.2 (Feb. 2016), pp. 1051–1062.
- **Ran Zhang**, Xuejin Chen, Takaaki Shiratori, Xin Tong, and Ligang Liu. “**An efficient volumetric method for non-rigid registration**”. In: *Graphical Models* 79 (2015), pp. 1–11.

# ACTIVITIES

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## Peer reviewer

- SIGGRAPH Asia 2019
- SIGGRAPH Asia 2018



## Oral presenter

- SIGGRAPH 2020 Thesis Fast Forward
- SIGGRAPH 2017
- Geometric Modeling and Processing(GMP) 2014



## Attendee

- SIGGRAPH 2018
- SIGGRAPH 2017
- Symposium Geometry Processing(SGP) 2015
- Geometric Modeling and Processing(GMP) 2014
- Geometric Modeling and Processing(GMP) 2012
- International Conference on Image and Graphics(ICIG) 2011

# MISCELLANEOUS

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## Advisor

### BrickPal: AR Manual for lego sets

📅 Jun. 2021 – Aug. 2021

🔗 [origami.dance/brickpal](https://origami.dance/brickpal)

- **BrickPal** is an AR-based manual that assisting users for assembling lego sets.

## Contributor

### GAMES: Graphics And Mixed Environment Seminar

📅 Since 2017

🔗 [games-cn.org](https://games-cn.org)

- **GAMES webinar** is the most popular computer graphics webinar in China.

## Co-founder

### GraphiCon: Yet another graphics blog

📅 Since 2017

🔗 [zhuanlan.zhihu.com/graphicon](https://zhuanlan.zhihu.com/graphicon)

- **GraphiCon** is one of the most popular computer graphics blogs in China.