

# Caigui Jiang | Curriculum Vitae

Visual Computing Center, – King Abdullah University of Science and Technology

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## Profile

I am a research scientist at Visual Computing Center (VCC) of King Abdullah University of Science and Technology (KAUST). Before that, I worked at ICSI, an institute affiliated with UC Berkeley, and the Max Planck Institute for Informatics from Jun. 2016 to Jan. 2019. I obtained my Ph.D. from KAUST under the supervision of Prof. Dr. Helmut Pottmann and Prof. Dr. Peter Wonka. I received my B.S. and M.S. degrees from Xi'an Jiaotong University (XJTU) in 2008 and 2011 respectively. My research interests are in geometric modeling, geometry processing, architectural geometry, computer graphics, and computer vision.

## Education

- **King Abdullah University of Science and Technology** **Thuwal, KSA**  
*Ph.D in computer science, GPA – 3.92/4.0* *Aug.2011–Jun.2016*  
Supervisors: Prof. Helmut Pottmann & Prof. Peter Wonka
- **Xi'an Jiaotong University** **Xi'an, China**  
*MS in Pattern Recognition and Intelligence Systems, GPA – 88.9/100* *Sep.2008–Jul.2011*
- **Xi'an Jiaotong University** **Xi'an, China**  
*BS in Electronic Engineering, GPA – 85.0/100* *Sep.2004–Jul.2008*

## Experience

- **King Abdullah University of Science and Technology** **Thuwal, KSA**  
*Research Scientist* *2019.1–present*
- **ICSI, UC Berkeley** **Berkeley, USA**  
*Research Scientist* *2018.2–2019.1*
- **Max Planck Institute for Informatics** **Saarbrücken, Germany**  
*Postdoc Researcher* *2016.8–2018.1*
- **King Abdullah University of Science and Technology** **Thuwal, KSA**  
*Research assistant* *2011–2016*
- **Microsoft Research Asia** **Beijing, China**  
*Research Intern* *Summer, 2015*
- **Vienna University of Technology** **Vienna, Austria**  
*Research Intern* *Summer, 2012*

## Publications (ACM SIGGRAPH/SIGGRAPH Asia/TOG)

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- **Using isometries for computational design and fabrication** 2021  
*ACM Transactions on Graphics, SIGGRAPH 2021* (计算机图形顶级期刊, 中科院一区, CCF A 类)  
Caigui Jiang, Hui Wang, Victor Ceballos Inza, Florian Rist, Felix Dellinger, Johannes Wallner, Helmut Pottmann
- **Freeform Quad-based Kirigami** 2020  
*ACM Transactions on Graphics, SIGGRAPH Asia 2020* (计算机图形顶级期刊, 中科院一区, CCF A 类)  
Caigui Jiang, Florian Rist, Johannes Wallner, Helmut Pottmann
- **Quad-Mesh Based Isometric Mappings and Developable Surfaces** 2020  
*ACM Transactions on Graphics, SIGGRAPH 2020* (计算机图形顶级期刊, 中科院一区, CCF A 类)  
Caigui Jiang, Cheng Wang, Florian Rist, Johannes Wallner, Helmut Pottmann
- **Curve-pleated Structures** 2019  
*ACM Transactions on Graphics, SIGGRAPH Asia 2019* (计算机图形顶级期刊, 中科院一区, CCF A 类)  
Caigui Jiang, Klara Mundilova, Florian Rist, Johannes Wallner, Helmut Pottmann
- **Checkerboard Patterns with Black Rectangles** 2019  
*ACM Transactions on Graphics, SIGGRAPH Asia 2019* (计算机图形顶级期刊, 中科院一区, CCF A 类)  
Chi-Han Peng\*, Caigui Jiang\*, Peter Wonka, Helmut Pottmann (\*joint first authors)
- **Design and Volume Optimization of Space Structures** 2017  
*ACM Transactions on Graphics, SIGGRAPH 2017* (计算机图形顶级期刊, 中科院一区, CCF A 类)  
Caigui Jiang, Chengcheng Tang, Hans-Peter Seidel, Peter Wonka
- **Polyhedral Patterns** 2015  
*ACM Transactions on Graphics*. (计算机图形顶级期刊, 中科院一区, CCF A 类, 封面文章)  
Caigui Jiang, Chengcheng Tang, Amir Vaxmann, Peter Wonka, Helmut Pottmann
- **Exploring Quadrangulations** 2014  
*ACM Transactions on Graphics 33, 1* (计算机图形顶级期刊, 中科院一区, CCF A 类)  
Chi-Han Peng, Michael Barton, Caigui Jiang, and Peter Wonka.

## Publications (Others)

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- **Computational Design of Lightweight Trusses** 2021  
*Computer-Aided Design (accepted)* (计算机辅助设计顶级期刊, CCF B 类)  
Caigui Jiang, Chengcheng Tang, Hans-Peter Seidel, Renjie Chen, Peter Wonka
- **Computational design and optimization of quad meshes based on diagonal meshes** 2020  
*Advances in Architectural Geometry 2020*  
Caigui Jiang, Cheng Wang, Eike Schling, Helmut Pottmann
- **Architectural freeform surfaces designed for cost-effective paneling through mold re-use** 2020  
*Advances in Architectural Geometry 2020*  
Davide Pellis, Martin Kilian, Hui Wang, Caigui Jiang, Christian Muller, Helmut Pottmann
- **Smooth Polyhedral Surfaces** 2020  
*Advances in Mathematics, 363, 2020* (数学大类著名期刊, 中科院一区, 作者顺序为姓氏首字母顺序)

Felix Günther, **Caigui Jiang**, Helmut Pottmann

- **Ultimate Force Boundary of Trusses**

*IASS Symposium 2019*

**Caigui Jiang**

2019
- **Field-Aligned Isotropic Surface Remeshing**

*Computer Graphics Forum 37, 6. (presented at Eurographics 2018)*(计算机图形著名期刊, CCF B 类)

Xingyi Du, Xiaohan Liu, Dong-Ming Yan, **Caigui Jiang**, Juntao Ye, Hui Zhang.

2018
- **Polyhedral Meshes with Concave Faces**

*SIGGRAPH Asia Posters 2017, Article No. 36. (计算机图形顶级会议)*

**Caigui Jiang**, Renjie Chen

2017
- **Measuring and Controlling Fairness of Triangulations**

*Advances in Architectural Geometry 2016 (Best paper award)*(建筑几何会议最佳论文奖)

**Caigui Jiang**, Felix Günther, Johannes Wallner, Helmut Pottmann

2016
- **Vertex Normals and Face Curvatures of Triangle Meshes**

*In A. I. Bobenko, editor, Advances in Discrete Differential Geometry. Springer*

Xiang Sun, **Caigui Jiang**, Johannes Wallner, Helmut Pottmann

2016
- **Freeform Honeycomb Structures and Lobel Frames**

*SIGGRAPH Posters 2015, Article No. 75.*(计算机图形顶级会议)

**Caigui Jiang**, Chengcheng Tang, Jun Wang, Johannes Wallner, Helmut Pottmann

2015
- **Template Assembly for Detailed Urban Reconstruction**

*Computer Graphics Forum (Proc. Eurographics 2015) 34,2.*(计算机图形著名期刊, CCF B 类)

Liangliang Nan, **Caigui Jiang**, Bernard Ghanem, Peter Wonka

2015
- **Cell Packing Structures**

*Computer-Aided Design 60 (2015), 70-83.*(计算机辅助设计顶级期刊, CCF B 类)

Helmut Pottmann, **Caigui Jiang**, Mathias Höbinger, Jun Wang, Philippe Bompas, Johannes Wallner.

2015
- **Interactive Modeling of Architectural Freeform Structures**

*Advances in Architectural Geometry 2014, London, UK.*

**Caigui Jiang**, Chengcheng Tang, Marko Tomicic, Johannes Wallner, Helmut Pottmann.

2014
- **Freeform Honeycomb Structures**

*Computer Graphics Forum (Proc. SGP 2014) 33,5.*(计算机图形著名期刊, CCF B 类)

**Caigui Jiang**, Jun Wang, Johannes Wallner, Helmut Pottmann.

2014
- **Freeform Shading and Lighting Systems from Planar Quads**

*Design Modelling Symposium Berlin 2013, Germany.*

**Caigui Jiang**, Jun Wang, Philippe Bompas, Johannes Wallner, Helmut Pottmann.

2013
- **Discrete Line Congruences for Shading and Lighting**

*Computer Graphics Forum (Proc. SGP 2013) 32,5.*(计算机图形著名期刊, CCF B 类)

Jun Wang, **Caigui Jiang**, Philippe Bompas, Johannes Wallner, Helmut Pottmann.

2013

## Selected Talks

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- **Curved-pleated Structures**

*SIGGRAPH Asia 2019*

**Brisbane, Australia**

Nov. 2019

- **Design and Volume Optimization of Space Structures** **LA, USA**  
*SIGGRAPH 2017* *Aug. 2017*
- **Geometric Rationalization for Free-from Architecture** **MPII, Germany**  
*invited by Prof. Hans-Peter Seidel & Dr. Renjie Chen* *Mar. 2016*
- **Polyhedral Patterns** **Kobe, Japan**  
*SIGGRAPH Asia 2015* *Nov. 2015*
- **Geometric Rationalization for Free-from Architecture** **EPFL, Switzerland**  
*invited by Prof. Mark Pauly* *Apr. 2015*
- **Interactive Modeling of Architectural Freeform Structures** **London, UK**  
*Advances in Architectural Geometry 2014* *Oct. 2014*
- **Freeform Honeycomb Structures** **Cardiff, UK**  
*SGP 2014* *Jul. 2014*
- **Hexagonal torsion-free structures** **Paris, France**  
*Curves and Surfaces 2014* *Jun. 2014*
- **Discrete Line Congruences for Shading and Lighting** **Berlin, Germany**  
*Design Modelling Symposium 2013* *Oct. 2013*

## Skills

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- **Programming:** C/C++, Matlab, Pov-Ray, Rhino script,  $\text{\LaTeX}$
- **API:** OpenGL, OpenMesh, OpenCV, Qt
- **Software Tools:** *Modeling:* Rhinoceros, 3ds Max. *Rendering:* Pov-Ray, Keyshot, V-ray.
- **Language:** Chinese (native), English

## Professional Activities

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- **Membership:** ACM, IEEE, IASS
- **Reviewer:** SIGGRAPH, SIGGRAPH Asia, SPM, CAD, IEEE CGA, Computer & Graphics, Graphical Models
- **International Program Committee:** GMP 2021, CAD/Graphics 2021

## References

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- **Prof. Helmut Pottmann:** Full Professor, KAUST and TU Wien, Austria
- **Prof. Hans-Peter Seidel:** Full Professor, Director of Max Planck Institute for Informatics, Germany
- **Prof. Peter Wonka:** Full Professor, KAUST, Saudi Arabia
- **Prof. Johannes Wallner:** Full Professor, TU Graz, Austria
- **Dr. Yang Liu:** Lead researcher, Microsoft Research Asia, Beijing, China