Caigui Jiang | Curriculum Vitae

Institute of Artificial Intelligence and Robotics – Xi'an Jiaotong University

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Biography

I am a professor at Institute of Artificial Intelligence and Robotics of Xi'an Jiaotong University in China. Before that, I worked as a research scientist and Postdoc at research scientist at Visual Computing Center (VCC) of King Abdullah University of Science and Technology (KAUST), ICSI, UC Berkeley and the Max Planck Institute for Informatics. 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

Xi'an Jiaotong University   **Xi'an, China**
Professor (青拔 A 类)   *2021.11–present*

King Abdullah University of Science and Technology   **Thuwal, KSA**
Research Scientist   *2019.1–2021.09*

ICSI, UC Berkeley   **Berkeley, USA**
Research Scientist   *2018.2–2019.1*

Max Planck Institute for Informatics   **Saarbrucken, 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*

Xi'an Jiaotong University   **Xi'an, China**

Research assistant   *2008-2011*

Publications (ACM SIGGRAPH/SIGGRAPH Asia/TOG)

Planar panels and planar supporting beams in architectural structures   **2022**

ACM Transactions on Graphics (计算机图形顶级期刊，中科院一区，CCF A 类)

Caigui Jiang*, Cheng Wang*, Xavier TELLIER, Johannes Wallner, Helmut Pottmann

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)

Shape-morphing Mechanical Metamaterials   **2022**

Computer-Aided Design, 143, 2022.(计算机辅助设计顶级期刊，CCF B 类)

Caigui Jiang, Florian Rist, Hui Wang, Johannes Wallner, Helmut Pottmann

Computational Design of Lightweight Trusses   **2021**

Computer-Aided Design, 141, 2021.(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
2019

IASS Symposium 2019
Caigui Jiang

Field-Aligned Isotropic Surface Remeshing
2018

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.

Polyhedral Meshes with Concave Faces
2017

SIGGRAPH Asia Posters 2017, Article No. 36. (计算机图形顶级会议)
Caigui Jiang, Renjie Chen

Measuring and Controlling Fairness of Triangulations
2016

*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

Vertex Normals and Face Curvatures of Triangle Meshes
2016

In A. I. Bobenko, editor, Advances in Discrete Differential Geometry. Springer
Xiang Sun, **Caigui Jiang**, Johannes Wallner, Helmut Pottmann

Freeform Honeycomb Structures and Lobel Frames
2015

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

Template Assembly for Detailed Urban Reconstruction
2015

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

Cell Packing Structures
2015

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.

Interactive Modeling of Architectural Freeform Structures
2014

Advances in Architectural Geometry 2014, London, UK.
Caigui Jiang, Chengcheng Tang, Marko Tomicic, Johannes Wallner, Helmut Pottmann.

Freeform Honeycomb Structures
2014

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.

Freeform Shading and Lighting Systems from Planar Quads
2013

Design Modelling Symposium Berlin 2013, Germany.

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

○ **Discrete Line Congruences for Shading and Lighting** 2013
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.

Selected Talks

○ **Curved-pleated Structures** **Brisbane, Australia**
SIGGRAPH Asia 2019 *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*

Awards

○ **Best Paper Award**: Advances in Architectural Geometry 2016

Skills

○ **Programming**: C/C++, Matlab, Pov-Ray, Rhino script, LaTeX

○ **API**: OpenGL, OpenMesh, OpenCV, Qt

○ **Software Tools**: *Modeling:* Rhinoceros, 3ds Max. *Rendering:* Pov-Ray, Keyshot, V-ray.

○ **Language**: Chinese (native), English

Professional Activities

○ **Membership**: ACM, IEEE, IASS

○ **Reviewer**: SIGGRAPH, SIGGRAPH Asia, SPM, CAD, IEEE CGA, Computer & Graphics, Graphical Models

○ **International Program Committee**: GMP 2021, CAD/Graphics 2021