

Contact Information	Information Systems Technology and Design Singapore University of Technology and Design 8 Somapah Rd, Singapore 487372	(+65) 64994892 songpenghit@gmail.com https://songpenghit.github.io
Research Interests	Computer Graphics. In particular, digital geometry processing, computational fabrication, and interactive graphics.	
Academic Positions	Assistant Professor Information Systems Technology and Design Singapore University of Technology and Design	2019 - present
	Research Scientist School of Computer and Communication Sciences École Polytechnique Fédérale de Lausanne, Switzerland Mentor: <i>Mark Pauly</i>	2017 - 2019
	Associate Researcher School of Computer Science and Technology University of Science and Technology of China Mentor: <i>Ligang Liu</i>	2014 - 2017
	Research Fellow School of Computer Science and Engineering Nanyang Technological University, Singapore Mentor: <i>Chi-Wing Fu</i>	2013 - 2014
Education	Nanyang Technological University, Singapore PhD in Computer Graphics Thesis: <i>Interaction Techniques for 3D Visual Exploration on Large Displays</i> Advisor: <i>Chi-Wing Fu</i>	2010 - 2013
	Harbin Institute of Technology (Shenzhen), China Master Degree in Computer Vision Thesis title: <i>Volumetric Stereo and Silhouette Fusion for 3D Object Modeling</i>	2007 - 2009
	Harbin Institute of Technology, China Bachelor Degree in Automation	2003 - 2007
Journal Publications (ACM TOG)	<ol style="list-style-type: none">Ziqi Wang, Peng Song, Florin Isvoranu, and Mark Pauly. "Design and Structural Optimization of Topological Interlocking Assemblies," <i>ACM Transactions on Graphics (SIGGRAPH Asia)</i>, 38(6), conditionally accepted, 2019.Ziqi Wang, Peng Song, and Mark Pauly. "DESIA: A General Framework for Designing Interlocking Assemblies," <i>ACM Transactions on Graphics (SIGGRAPH Asia)</i>, 37(6), Article No. 191, 2018.Peng Song, Xiaofei Wang, Xiao Tang, Chi-Wing Fu, Hongfei Xu, Ligang Liu, and Niloy J. Mitra. "Computational Design of Wind-up Toys," <i>ACM Transactions on Graphics (SIGGRAPH Asia)</i>, 36(6), Article No. 238, 2017. Featured ACM SIGGRAPH Press Release.Peng Song*, Chi-Wing Fu*, Yueming Jin, Hongfei Xu, Ligang Liu, Pheng-Ann Heng, and Daniel Cohen-Or. "Reconfigurable Interlocking Furniture," <i>ACM Transactions on Graphics (SIGGRAPH Asia)</i>, 36(6), Article No. 174, 2017. (*joint 1st authors)Peng Song, Bailin Deng, Ziqi Wang, Zhichao Dong, Wei Li, Chi-Wing Fu, and Ligang Liu. "CofiiFab: Coarse-to-Fine Fabrication of Large 3D Objects," <i>ACM Transactions on Graphics (SIGGRAPH)</i>, 35(4), Article No. 45, 2016.	

Journal Publications (additional)

6. Chi-Wing Fu*, **Peng Song***, Xiaoqi Yan, Lee Wei Yang, Pradeep Kumar Jayaraman, and Daniel Cohen-Or. "Computational Interlocking Furniture Assembly," *ACM Transactions on Graphics (SIGGRAPH)*, Article No. 91, 2015. (*joint 1st authors)
7. **Peng Song***, Chi-Wing Fu*, Prashant Goswami, Jianmin Zheng, Niloy J. Mitra, and Daniel Cohen-Or. "Reciprocal Frame Structures Made Easy," *ACM Transactions on Graphics (SIGGRAPH)*, 32(4), Article No. 94, 2013. (*joint 1st authors)
8. **Peng Song**, Chi-Wing Fu, and Daniel Cohen-Or. "Recursive Interlocking Puzzles," *ACM Transactions on Graphics (SIGGRAPH Asia)*, 31(6), Article No. 128, 2012.
9. Keke Tang, **Peng Song**, Xiaofei Wang, Bailin Deng, Chi-Wing Fu, and Ligang Liu. "Computational Design of Steady 3D Dissection Puzzles," *Computer Graphics Forum (Eurographics)*, conditionally accepted, 2019.
10. **Peng Song**, Zhongqi Fu, and Ligang Liu. "Grasp Planning via Hand-Object Geometric Fitting," *The Visual Computer*, 34(2):257-270, 2018.
11. Keke Tang, **Peng Song**, and Xiaoping Chen. "3D Object Recognition in Cluttered Scenes With Robust Shape Description and Correspondence Selection," *IEEE Access*, 5:1833-1845, 2017.
12. **Peng Song**, Zhongqi Fu, Ligang Liu, and Chi-Wing Fu. "Printing 3D Objects with Interlocking Parts," *Computer Aided Geometric Design (GMP)*, 35-36, 137-148, 2015.
13. **Peng Song**. "Local Voxelizer: A Shape Descriptor for Surface Registration," *Computational Visual Media*, 1(4):279-289, 2015.
14. **Peng Song**, Chi-Wing Fu, Prashant Goswami, Jianmin Zheng, Niloy J. Mitra, and Daniel Cohen-Or. "An Interactive Computational Tool for Large Reciprocal Frame Structures," *Nexus Network Journal*, 16(1):109-118, 2014.
15. Chih-Kuo Yeh, **Peng Song**, Peng-Yen Lin, Chi-Wing Fu, Chao-Hung Lin, and Tong-Yee Lee. "Double-sided 2.5D Graphics," *IEEE Transactions on Visualization and Computer Graphics*, 19(2):225-235, 2013.
16. **Peng Song**, Xiaojun Wu, and Michael Yu Wang. "Volumetric Stereo and Silhouette Fusion for Image-based Modeling," *The Visual Computer*, 26(12):1435-1450, 2010.

Conference Publications

17. **Peng Song***, Xiaoqi Yan*, Wooi Boon Goh, Alex Qiang Chen, and Chi-Wing Fu. "Hand-Posture-Augmented Multitouch Interactions for Exploratory Visualization," *SIGGRAPH Asia*, Technical Brief, Article No. 27, 2016. (*joint 1st authors)
18. Keke Tang, **Peng Song**, and Xiaoping Chen. "Signature of Geometric Centroids for 3D Local Shape Description and Partial Shape Matching," *ACCV*, 311-326, 2016.
19. **Peng Song**, and Xiaoping Chen. "Pairwise Surface Registration Using Local Voxelizer," *Pacific Graphics*, short paper, 1-6, 2015.
20. Nicolas Mellado, **Peng Song**, Xiaoqi Yan, Chi-Wing Fu, and Niloy J. Mitra. "Computational Design and Construction of Notch-free Reciprocal Frame Structures," *Advances in Architectural Geometry (AAG)*, 181-197, 2014.
21. Xiaoqi Yan, **Peng Song**, Chi-Wing Fu, Wooi Boon Goh, and Kwan-Liu Ma. "Exploring Volume Visualization with Whole-hand Multitouch Gestures," *Pacific Graphics*, short paper, 7-10, 2013.
22. **Peng Song**, Wooi Boon Goh, William Hutama, Chi-Wing Fu, and Xiaopei Liu. "A Handle Bar Metaphor for Virtual Object Manipulation with Mid-Air Interaction," *CHI*, 1297-1306, 2012.
23. Seon Joo Kim, Hongwei Ng, Stefan Winkler, **Peng Song**, and Chi-Wing Fu. "Brush-and-Drag: A Multi-touch Interface for Photo Triaging," *MobileHCI*, 59-68, 2012.

24. William Hutama, **Peng Song**, Chi-Wing Fu, and Wooi Boon Goh. "Distinguishing Multiple Smart-Phone Interactions on a Multi-touch Wall Display using Tilt Correlation," *CHI*, 3315-3318, 2011.
25. **Peng Song**, Wooi Boon Goh, Chi-Wing Fu, Qiang Meng, and Pheng-Ann Heng. "WYSIWYF: Exploring and Annotating Volume Data with a Tangible Handheld Device," *CHI*, 1333-1342, 2011.
26. **Peng Song**, Xiaojun Wu, Michael Yu Wang, and Jianhuang Wu. "Expansion-Based Depth Map Estimation for Multi-View Stereo," *IROS*, 3213-3218, 2010.
27. **Peng Song**, Xiaojun Wu, and Michael Yu Wang. "A Robust and Accurate Method for Visual Hull Computation," *IEEE International Conference on Information and Automation (ICIA)*, 784-789, 2009.

Book Chapters

28. **Peng Song** and Xiaojun Wu. "Multi-View Stereo Reconstruction Technique," In *Depth Map and 3D Imaging Applications: Algorithms and Technologies*, chapter 2, 10-26, IGI Global, USA, 2012.

Research Grants

<i>Affordance-assisted Irregular Object Recognition for Service Robots</i>	2015 - 2017
National Natural Science Foundation of China, sole PI , ¥260,000	
<i>3D Object Grasp Planning for Service Robots</i>	2015 - 2017
Anhui Provincial Natural Science Foundation, sole PI , ¥80,000	
<i>3D Object Recognition Based on Partial Shape Matching</i>	2015 - 2016
Research Funds for the Central Universities, sole PI , ¥100,000	
<i>Automatic Non-human Production with Injection Molding Machines</i>	2014 - 2015
Science and Technology Service Network Initiative of the Chinese Academy of Sciences, Co-PI , ¥400,000	

Patents

<i>A Computational Approach for Designing Interlocking Structures</i>	2017.11.07
Peng Song and Ligang Liu USTC, Chinese Patent, ZL201410664520.2	
<i>A Computational Approach for Designing Interlocking Polyhedrons</i>	
Peng Song and Ligang Liu Patent pending	
<i>An Optimization Approach to Approximate 3D shape with Convex Polyhedrons</i>	
Peng Song and Ligang Liu Patent pending	

Teaching

Digital Geometry Processing, Assistant	2018 Fall
EPFL, Switzerland	
Advances in Computer Graphics, Co-teacher	2017 Summer
University of Science and Technology of China	
Advances in Computer Graphics, Co-teacher	2014 Summer
University of Science and Technology of China	
Introduction to Robotics Programming, Coordinator, Co-teacher	2014 Summer
University of Science and Technology of China	
Introduction to Computational Thinking, Assistant	2012 Fall
Nanyang Technological University, Singapore	

	Computer Graphics and Visualization, Assistant Nanyang Technological University, Singapore	2012 Spring
Advising	Ziqi Wang PhD candidate, EPFL	2017.10-present
	Samara (Yingying) Ren Intern, EPFL & Undergraduate, UIUC	2018.06-2018.08
	Keke Tang PhD, USTC	2015-2017
	Xiaofei Wang Master, USTC	2016-2017
	Hongfei Xu Master, USTC	2016-2017
	Zhongqi Fu Master, USTC	2015-2016
Conference Talks	<i>DESIA: A General Framework for Designing Interlocking Assemblies</i> (with Ziqi Wang) ACM SIGGRAPH Asia	2018.12
	<i>Computational Design of Wind-up Toys</i> ACM SIGGRAPH Asia	2017.11
	<i>Reconfigurable Interlocking Furniture</i> (with Chi-Wing Fu) ACM SIGGRAPH Asia	2017.11
	<i>Hand-Posture-Augmented Multitouch Interactions for Exploratory Visualization</i> ACM SIGGRAPH Asia	2016.12
	<i>Cofifab: Coarse-to-Fine Fabrication of Large 3D Objects</i> (with Bailin Deng) ACM SIGGRAPH	2016.07
	<i>Reciprocal Frame Structures Made Easy</i> (with Chi-Wing Fu) ACM SIGGRAPH	2013.07
	<i>Recursive Interlocking Puzzles</i> ACM SIGGRAPH Asia	2012.11
	<i>A Handle Bar Metaphor for Virtual Object Manipulation with Mid-Air Interaction</i> ACM CHI	2012.05
	<i>WYSIWYF: Exploring and Annotating Volume Data with a Tangible Handheld Device</i> ACM CHI	2011.05
Invited Talks	<i>3D Interlocking Assemblies: Design and Applications</i> Disney Research, Zürich Invited by Moritz Bächer	2018.08
	<i>Computational Design and Fabrication of Structures and Mechanisms</i> GAMES Webinar Invited by Ligang Liu	2017.12
	<i>An Interlocking Method for 3D Assembly Design and Fabrication</i> EPFL, Lausanne, Switzerland Invited by Mark Pauly	2017.06

<i>3D Interlocking Structure Design, Fabrication, and Applications</i> Chinagraph, Hangzhou, China Invited by Shi-min Hu	2016.11
<i>CofiFab: Coarse-to-Fine Fabrication of Large 3D Objects</i> Shenzhen University, Shenzhen, China Invited by Hui Huang	2016.04
<i>Surface Registration for Service Robots</i> MSRA symposium on collaborative research, Beijing, China Invited by Guobin Wu	2015.11

Professional Services

Program Committee Member

- CAD/Graphics 2019
- Chinagraph 2018
- CAD/Graphics 2017
- SIGGRAPH Asia 2016 Technical Brief and Poster

Section Chair

- GAMES Webinar 2018, 2017

Reviewer of Research Funding

- National Science Foundation of USA, CISE/IIS, 2018

Reviewer of Technical Paper

- SIGGRAPH
- SIGGRAPH Asia
- IEEE Visualization
- CHI
- Pacific Graphics
- ACM Transactions on Graphics
- IEEE Transactions on Visualization and Computer Graphics
- IEEE Transactions on Image Processing
- Computer Graphics Forum
- Graphical Models
- Computers & Graphics
- The Visual Computer
- Automation in Construction
- Robotica et al.

Press

<i>New Computational Method Provides Optimized Design of Wind up Toys</i> EurekAlert, By Melanie A. Farmer	2017.11
<i>3D Printed Wind-up Toys Can be Made Automatically using New Computational System</i> www.3ders.org, By Benedict	2017.11
<i>Algorithmic Designs of Wind-up Toys</i> I Programmer, By Lucy Black	2017.11
<i>16 Wild Research Experiments That Could Change Design</i> CO.DESIGN, By Mark Wilson	2016.07
<i>Furniture Design Swaps Glue and Screws for "Keys"</i> PSFK, By Jason Brick	2015.06

New Auto. Software Simplifies Furniture Assemblies into Fastener-Free Flat Pack Designs 2015.06
SolidSmack, By Simon Martin

This 3D Software Designs Furniture That Assembles Without Screws or Glue 2015.06
GIZMODO, By Andrew Liszewski

Awards ACM China Rising Star Award (Hefei Region) 2016
ICIA Best Paper Award in Information 2009
Outstanding graduates of HIT (Shenzhen) 2009

Language **Chinese** (mother tongue) **English** (fluent)

References Prof. **Mark Pauly** Mentor
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Prof. **Chi-Wing Fu** PhD Advisor
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University College London, United Kingdom
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Prof. **Daniel Cohen-Or** Collaborator
School of Computer Science
Tel Aviv University, Israel
E-mail: cohenor@gmail.com