

# Yingying REN

yingying.ren@epfl.ch | <https://samararen.github.io>

## ACADEMIC APPOINTMENT

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SEPT. 2024 - PRESENT | **Institute of Science and Technology Austria (ISTA), Austria**  
Assistant Professor

## EDUCATION

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SEPT. 2019 - AUG. 2024 | **Swiss Federal Institute of Technology Lausanne (EPFL), Switzerland**  
Ph.D. in Computer Science  
Geometric Computing Laboratory  
Advisor: Prof. Dr. Mark Pauly  
Co-advisor: Prof. Dr. Julian Panetta  
GPA: 5.79 / 6.0

AUG. 2015 - MAY 2019 | **University of Illinois at Urbana-Champaign (UIUC), USA**  
Dual Degrees BSc. with Highest Honors in Computer Science  
BSc. with Highest Distinction in Mathematics  
GPA: 3.94 / 4.0

## PUBLICATIONS

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- **Computational Homogenization for Inverse Design of Surface-based Inflatables**  
Y. Ren, J. Panetta, S. Suzuki, U. Kusupati, F. Isvoranu, M. Pauly  
*ACM Transactions on Graphics (Proc. of SIGGRAPH 2024)*
- **Reach for the Arcs: Reconstructing Surfaces from SDFs via Tangent Points**  
S. Sèllan, Y. Ren, C. Batty, O. Stein  
*SIGGRAPH 2024 Conference Papers*
- **C-shells: Deployable Gridshells with Curved Beams**  
Q. Becker, S. Suzuki, Y. Ren, D. Pellis, J. Panetta, M. Pauly  
*ACM Transactions on Graphics (Proc. of SIGGRAPH Asia 2023)*, Best Paper Award Honorable Mention
- **Computational Exploration of Multistable Elastic Knots**  
M. Vidulis, Y. Ren, J. Panetta, E. Grinspun, M. Pauly  
*ACM Transactions on Graphics (Proc. of SIGGRAPH 2023)*
- **BamX: Rethinking Deployability in Architecture through Weaving**  
S. Suzuki, A. Martin, Y. Ren, T.-Y. Chen, S. Parascho, M. Pauly  
*Advances in Architectural Geometry 2023*
- **Umbrella Meshes: Elastic Mechanisms for Freeform Shape Deployment**  
Y. Ren\*, U. Kusupati\*, J. Panetta, F. Isvoranu, D. Pellis, T. Chen, M. Pauly (\*joint first author)  
*ACM Transactions on Graphics (Proc. of SIGGRAPH 2022)*, Best Paper Award Honorable Mention
- **From Kirigami to Hydrogels: A Tutorial on Designing Conformally Transformable Surfaces**  
Y. Wang, Y. Ren, T. Chen  
*Journal of Applied Mechanics 2022*
- **3D Weaving with Curved Ribbons**  
Y. Ren, J. Panetta, T. Chen, F. Isvoranu, S. Poincloux, C. Brandt, A. Martin, M. Pauly  
*ACM Transactions on Graphics (Proc. of SIGGRAPH 2021)*
- **A Visibility-Based Approach to Computing Nondeterministic Bouncing Strategies**  
A. Q. Nilles, Y. Ren, I. Becerra, S. M. LaValle  
*International Journal of Robotics Research 2021*

## PROFESSIONAL EXPERIENCE

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JUNE 2023 - SEPT. 2023 | **Visiting Researcher at University of Toronto**  
Mentor: Prof. Dr. Eitan Grinspun  
Worked on topics in multistability analysis and optimization

MAY 2022 - AUG. 2022	<b>Visiting Researcher at University of California, Davis</b> Mentor: Prof. Dr. Julian Panetta Worked on topics in numerical simulation and material homogenization
JUNE 2021 - OCT. 2021	<b>Visiting Researcher at Carnegie Mellon University (remote)</b> Mentors: Prof. Dr. Keenan Crane, Rohan Sawhney Worked on topics in Monte Carlo Geometric Processing
JUNE 2019 - AUG. 2019	<b>Software Engineering Intern at Google, Chrome Media Team, Mountain View</b> Mentor: Dr. Ondrej Stava Designed and implemented algorithms for mesh simplification and abstraction
JUNE 2018 - AUG. 2018	<b>Research Intern at EPFL</b> Mentors: Prof. Dr. Mark Pauly, Prof. Dr. Peng Song Worked on assembly-aware design of topological interlocking structures
OCT. 2017 - MAY 2019	<b>Undergraduate Researcher at Motion Strategy Lab, UIUC</b> Mentors: Prof. Dr. Steve LaValle, Dr. Alexandra Nilles Worked on motion strategies for bouncing robots
JAN. 2017 - AUG. 2017	<b>Research Intern at Samsung Research America, Mountain View</b> Worked in Computer Vision Group, Think Tank Team Designed and built deep learning pipelines for virtual reality and augmented reality applications
AUG. 2016 - AUG. 2017	<b>Undergraduate Researcher at Illinois Geometry Lab, UIUC</b> Worked on a research project about polyhedral geometry for analyzing phylogenetic methods and tree spaces
MAY 2016 - AUG. 2016	<b>Research Intern at Health Care Engineering Systems Center, UIUC</b> Produced virtual reality scene builder with 360 videos for medical training

## RESEARCH INTERESTS

Computer Graphics, Geometry, Optimization, Digital Fabrication, Physics-Based Simulation, Robotics

## SELECTED TALKS

MAY 2024	<b>ETH Graphics seminar, Switzerland</b> Invited Speaker
MARCH 2024	<b>University of Victoria Computer Science seminar, online</b> Invited Speaker
MARCH 2024	<b>Brown University Computer Science seminar, USA</b> Invited Speaker
FEBRUARY 2024	<b>Institute of Science and Technology Austria</b> Invited Speaker
OCTOBER 2022	<b>IEEE VIS, online</b> Invited technical paper presenter
OCTOBER 2022	<b>Graphyz 2, France</b> Contributed talks presenter
AUGUST 2022	<b>ACM SIGGRAPH, online</b> Technical paper presenter
MAY 2022	<b>Stanford Graphics Lunch, Stanford, California, USA</b> Invited speaker
SEPTEMBER 2021	<b>International Geometry Workshop, Obergurgl, Austria</b> Invited speaker
SEPTEMBER 2021	<b>Toronto Geometry Colloquium, online</b> Invited speaker
AUGUST 2021	<b>ACM SIGGRAPH, online</b> Technical paper presenter
AUGUST 2017	<b>SIAM Conference on Applied Algebraic Geometry, Atlanta, Georgia, USA</b> Mini-symposium presenter

## MENTORSHIP

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FEB. 2024 - JUNE 2024	S. Lequeu, E. Ganier (MS students, EPFL), <b>Deployable Origami Gridshells</b>
SEPT. 2023 - DEC. 2023	N. Zhou (MS student, EPFL), <b>Contacts in the Simulation of Elastic Sheet</b>
FEB. 2023 - JUNE 2023	P. Keller (MS student, EPFL), <b>Actuation of Umbrella Meshes</b>
SEPT. 2022 - FEB 2023	L. Dandy (MS student, EPFL), <b>Gridshells with orthogonally intersecting ribbons</b>
FEB. 2022 - JUNE 2022	S. Ducouedicdeker (MS student, EPFL), <b>Hybrid textile</b>
SEPT. 2021 - FEB. 2022	S. Gachoud (Master thesis student, EPFL), <b>Hybrid textile and rod simulation</b>
SEPT. 2020 - DEC. 2020	M. Pisa (MS student, EPFL), <b>Simulating tensegrities with discrete elastic rods</b>
AUG. 2018 - MAY. 2019	R. Lou, A. Rios, J. Rogge, X. Yu (BS students, UIUC), <b>Search for new tensegrity configurations</b>

## TEACHING EXPERIENCE

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FALL 2021, 2022, 2023	CS 457 Geometric Computing, EPFL
SPRING 2021	CS 341 Introduction to Computer Graphics, EPFL
FALL 2020	Math 101 Analysis I, EPFL
SPRING 2020	CS 251 Theory of Computation, EPFL
SPRING 2019	CS 374 Introduction to Algorithms and Models of Computation, UIUC
FALL 2016	CS 498 Virtual Reality, UIUC

## PROFESSIONAL SERVICE

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2024	Reviewer for SIGGRAPH, SIGGRAPH Asia, SCF
2023	Reviewer for ACM Transactions on Graphics, Computer Graphics Forum

## HONORS AND AWARDS

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2023	Teaching Assistant Award, School of Computer Science, EPFL
2023	Rising Stars in Computer Graphics, WiGRAPH
2021	Winner of SciFilmIt Hackathon Lausanne [link for winning film]
2019 - 2020	EPFL EDIC Fellowship
2019	C.W. Gear Outstanding Undergraduate Award, UIUC
2018 - 2019	Yunni and Maxine Pao Memorial Scholarship, College of Engineering, UIUC
2017 - 2019	Hayward Tau Beta Pi Award, College of Engineering, UIUC
2017 - 2018	JP Morgan Chase WCS Scholarship, Department of Computer Science, UIUC
2017 - 2018	John Deere Scholarship, Department of Computer Science, UIUC
2017	Elizabeth Bennett Scholarship, Department of Mathematics, UIUC
2016 - 2019	James Scholar, College of Engineering, UIUC
2015 - 2019	Dean's List, College of Liberal Arts and Sciences, College of Engineering, UIUC

## LEADERSHIP EXPERIENCE

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MAR. 2021 - SEPT. 2023	<b>Event Coordinator</b> at WiGRAPH Organized the yearly SIGGRAPH Berthouzoz Women in Research Event
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