Yingying Ren

yingying.ren@epfl.ch | +41 21 693 13 21

Education

Sept. 2019 - June 2024	**Swiss Federal Institute of Technology Lausanne (EPFL), Switzerland** **Ph.D.** in Computer Science Geometric Computing Laboratory Advisor: Prof. Dr. Mark Pauly 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

- **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)
- **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

June 2023 - Sept. 2023	**Visiting Researcher** at **University of Toronto** Mentor: Prof. Dr. Eitan Grinspun Worked on topics in bistability analysis and optimization
May 2022 - Aug. 2022	**Visiting Researcher** at **University of California, Davis** Mentor: Prof. Dr. Julian Panetta Worked on topics in numerical simulation and material homogenization
June 2021 - Oct. 2021	**Visiting Researcher** at **Carnegie Mellon University** (remote) Mentors: Prof. Dr. Keenan Crane, Rohan Sawhney Worked on topics in Monte Carlo Geometric Processing
June 2019 - Aug. 2019	**Software Engineering Intern** at **Google, Chrome Media Team**, Mountain View Mentor: Dr. Ondrej Stava Designed and implemented algorithms for mesh simplification and abstraction

June 2018 - Aug. 2018	**Research Intern** at **EPFL** Mentors: Prof. Dr. Mark Pauly, Prof. Dr. Peng Song Worked on assembly-aware design of topological interlocking structures
Oct. 2017 - May 2019	**Undergraduate Researcher** at **Motion Strategy Lab, UIUC** Mentors: Prof. Dr. Steve LaValle, Dr. Alexandra Nilles Worked on motion strategies for bouncing robots
Jan. 2017 - Aug. 2017	**Research Intern** at **Samsung Research America**, Mountain View 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	**Undergraduate Researcher** at **Illinois Geometry Lab, UIUC** Worked on a research project about polyhedral geometry for analyzing phylogenetic methods and tree spaces
May 2016 - Aug. 2016	**Research Intern** at **Health Care Engineering Systems Center, UIUC** Produced virtual reality scene builder with 360 videos for medical training

Research Interests

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

Selected Talks

October 19, 2022	**IEEE VIS** Invited technical paper presenter
October 18, 2022	**Graphyz 2** Contributed talks presenter
August 11, 2022	**ACM SIGGRAPH** Technical paper presenter
May 26, 2022	**Stanford Graphics Lunch**, Stanford, California, USA Invited speaker
September 20-25, 2021	**International Geometry Workshop**, Obergurgl, Austria Invited speaker
September 17, 2021	**Toronto Geometry Colloquium** Invited speaker
August 12, 2021	**ACM SIGGRAPH** Technical paper presenter
August 3, 2017	**SIAM Conference on Applied Algebraic Geometry**, Atlanta, Georgia, USA Mini-symposium presenter

Mentorship

Feb. 2023 - June 2023	P. Keller (MS student, EPFL), **Actuation of Umbrella Meshes**
Sept. 2022 - Feb 2023	L. Dandy (MS student, EPFL), **Gridshells with orthogonally intersecting ribbons**
Feb. 2022 - June 2022	S. Ducouedicdeker (MS student, EPFL), **Hybrid textile**
Sept. 2021 - Feb. 2022	S. Gachoud (MS student, EPFL), **Hybrid textile and rod simulation**
Sept. 2020 - Dec. 2020	M. Pisa (MS student, EPFL), **Simulating tensegrities with discrete elastic rods**
Aug. 2018 - May. 2019	R. Lou, A. Rios, J. Rogge, X. Yu (BS students, UIUC), **Search for new tensegrity configurations**

Teaching Experience

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

2023 | Reviewer for ACM Transations on Graphics, Computer Graphics Forum

Honors and Awards

2023 | Rising Stars in Computer Graphics, WiGRAPH
2021 | Winner of SciFilmIt Hackathon Lausanne
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

Mar. 2021 - Sept. 2023 | **Event Coordinator** at WiGRAPH
Organize the yearly SIGGRAPH Berthouzoz Women in Research Event