Klara Mundilova

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Education

09/2019 – 02/2024 **Doctor of Philosophy, Computer Science**
Computer Science and Artificial Intelligence Laboratory, MIT, USA
Thesis: Gluing and Creasing Paper along Curves: Computational Methods for Analysis and Design
Advisors: Erik Demaine and Tomohiro Tachi
GPA: 5.0 / 5.0

09/2017 – 08/2019 **PhD candidate, Technical Mathematics**
Institute of Discrete Mathematics and Geometry, TU Wien, Austria
Advisors: Helmut Pottmann and Christian Müller

11/2014 – 06/2017 **Master of Science, Technical Mathematics**
Institute of Discrete Mathematics and Geometry, TU Wien, Austria
Thesis: Geometry and Interactive Design of Curved Creases
Advisor: Helmut Pottmann
Graduation with Distinction

10/2010 – 11/2014 **Bachelor of Science, Technical Mathematics**
Institute of Discrete Mathematics and Geometry, TU Wien, Austria
Thesis: Lineare Weingarten Kanalflächen
Advisor: Udo Hertrich-Jeromin

Professional Experience

09/2024 – 08/2026 **Postdoctoral Scientist**
Geometric Computing Laboratory, EPFL, Switzerland

02/2024 – 12/2024 **Freelance Geometry Consulting**
Vienna, Austria

06/2024 – 09/2024 **Project Assistant** (8h/week)
Institute for Structure and Design, University of Innsbruck, Austria

03/2024 – 06/2024 **Programmer** (20h/week)
Rechenraum, Vienna, Austria

10/2020 – 04/2021 **Lecturer and Project Assistant** (8h/week)
Institute for Structure and Design, University of Innsbruck, Austria

10/2017 – 09/2019 **University and FWF Project Assistant** (30h – 40h/week)
Institute of Discrete Mathematics and Geometry, TU Wien, Austria

08/2015 – 02/2017 **Programmer** (20h – 28.5h/week)
Rechenraum, Vienna, Austria

08/2014 – 09/2017 **Teaching Assistant** (12.5h – 15h/week)
Institute of Discrete Mathematics and Geometry, TU Wien, Austria

Scholarships & Fellowships

2025 **JSPS Short-term Postdoctoral Fellowship**

2024 **Swiss Government Excellence Scholarship**

2023 **David S. Y. (1962) and Harold Wong MIT Graduate Student Fellowship**

2022 **American Association of University Women International Fellowship**

2019 **Akamai MIT Presidential Graduate Fellowship**

Honors & Awards

2026 **International Society for Geometry and Graphics Young Researcher Award Honorable Mention**
Rigid-Ruling Folding Compatibility of Planar Creases

2025 **SIGGRAPH Best Paper Honorable Mention** (top 5% of papers)
C-Tubes: Design and Optimization of Tubular Structures Composed of Developable Strips

2022 **Graduate Women International Fay Weber Award**

2018 **Christiane Hörbiger Preis**

Teaching Experience

Massachusetts Institute of Technology, USA

- Teaching Assistant for *Mathematics for Computer Science* (6.042)
  SS 2021, WS 2021, WS 2022
- Teaching Assistant for *Geometric Folding Algorithms* (6.849)
  WS 2020

University of Innsbruck, Austria

- Lecturer for Seminar *Structure and Geometry "Close Enough: How to Scale and Materialize"*
  WS 2020

TU Wien, Austria

- Lecturer for *Geometry Optimization and Discretization*
  WS 2017
- Recitation instructor for *Projektive Geometrie*
  SS 2018
- Recitation instructor for *Geometry Optimization and Discretization*
  WS 2014, WS 2015, WS 2016
- Recitation instructor for *Grundkurs Architektur und Darstellung - DG*
  WS 2014, SS 2015, WS 2015, SS 2016, SS 2017
- Recitation instructor for *Ergänzungskurs Darstellende Geometrie*
  WS 2015, WS 2016

Workshops and Summer Schools

08/2026 **Instructor at the Summer School Geometry for Digital Fabrication and Architecture**
Cone-Nets: Theory, Design, and Fabrication
Technical University of Denmark, Copenhagen, Denmark

07/2026 **Instructor at the Symposium on Geometry Processing 2026 Graduate School** (with M. Vidulis)
Cone-Nets: Theory and Interactive Design
University of Bern, Switzerland

11/2025 **Instructor at the AAG 2025 Workshop Structural Origami Collaboration**
Massachusetts Institute of Technology, Cambridge, Massachusetts, USA

11/2025 **Member of the scientific team of the GCD Workshop Pressure Based Motion**
TU Wien, Vienna, Austria

08/2021 **Teaching Assistant at the Summer Geometry Initiative** (organized by Justin Solomon, MIT)
online

List of Publications

In the following publication list, in papers marked with a ☆, the authors are listed in alphabetical order. Authors marked with a ★ are considered joint first authors.

Preprints

[1] **K. Mundilova**. "On the Rigid-Ruling Folding of Curved Creases: Conjugate-Net Preserving Isometric Deformations of Semi-Discrete Globally Developable Conjugate-Nets." arXiv:2602.22164, 2026.

Accepted Peer-Reviewed Papers

[2] **K. Mundilova**, M. Vidulis, Q. Becker, F. Isvoranu, and M. Pauly. "CNets: An Interactive Design Framework for Cone-Nets." to be published in *Advances in Architectural Geometry (AAG)*, 2025.

[3] **K. Mundilova**, E. Demaine, and T. Tachi. "Interactive Curved Crease Origami Design Through Constructive Developable Subdivision." to be published in *Advances in Architectural Geometry (AAG)*, 2025.

Published Peer-Reviewed Papers

[4] M. Li, J. Montes Maestre, B. Thomaszewski, M. Pauly, **K. Mundilova**, and E. Ganier. "A Unified Homogenization Framework for Straight- and Curved-Crease Origami Materialsm." ACM Transactions on Graphics 45(4), Article 147, 2026.

[5] **K. Mundilova** and O. Gross. "(Semi-)Invariant Curves from Centers of Triangle Families." *Computer Aided Geometric Design*, Volume 127, 2026.

[6] M. Vidulis★, **K. Mundilova**★, Q. Becker★, F. Isvoranu, and M. Pauly. "C-Tubes: Design and Optimization of Tubular Structures Composed of Developable Strips." *ACM Transactions on Graphics*, 44(4), Article 154, 2025.

[7] **K. Mundilova** and G. Nawratil. "Rigid-Ruling Folding Compatibility of Planar Creases." In *Origami8, Volume III* (OSME 2024, Lecture Notes in Mechanical Engineering), pp. 65–86. Springer, Singapore, 2025.

[8] **K. Mundilova**, E. Demaine, R. Lang, and T. Tachi. "Analysis of Huffman's Hexagonal Column with Cusps." In *Origami8, Volume III* (OSME 2024, Lecture Notes in Mechanical Engineering), pp. 19–36. Springer, Singapore, 2025.

[9]☆ L. Chung, E. Demaine, M. Demaine, J. Diomidova, J. Lynch, **K. Mundilova**, and H. Zhang. "Folding a Strip of Paper into Shapes with Specified Thickness." In *Origami8, Volume III* (OSME 2024, Lecture Notes in Mechanical Engineering), pp. 249–266. Springer, Singapore, 2025.

[10] K. Sharifmoghaddam, **K. Mundilova**, G. Nawratil, T. Tachi. "Woven Rigidly Foldable T-hedral Tubes Along Translational Surfaces." In *Origami8, Volume I* (OSME 2024, *Lecture Notes in Mechanical Engineering*), pp. 141–156. Springer, Singapore, 2025.

[11]☆ R. Foschi, R. Maleczek, **K. Mundilova**, S. Nishimoto, T. Tachi. "Slit-Folding: Actuating Curved Creases by Closing Tailored Openings." In *Origami8, Volume I* (OSME 2024, *Lecture Notes in Mechanical Engineering*), pp. 295–310. Springer, Singapore, 2025.

[12]☆ MIT CompGeom Group: H. Akitaya, E. Demaine, A. Hesterberg, T. Hull, A. Lubiw, J. Lynch, **K. Mundilova**, C. Nara, J. O'Rourke, F. Stock, J. Tkadlec, and R. Uehara. "Quasigeodesics on the Cube." In *Proceedings of the Canadian Conference on Computational Geometry (CCCG)*, pp. 78-84, 2025.

[13] **K. Mundilova**. "Maclaurin Trisectrices as t-Affine Loci of the First Isogonic and Isodynamic Centers." In *Proceedings of the International Conference on Geometry and Graphics (ICGG)*, pp. 136-151, 2024.

[14] **K. Mundilova**, E. Demaine, R. Lang, and T. Tachi. "Curved-Crease Origami Spirals Constructed from Reflected Cones." In *Bridges 2023 Conference Proceedings*, pp. 401-404, 2023.

[15]☆ R. Kraft, R. Maleczek, **K. Mundilova**, and T. Tachi. "From Quad Filling to Wrinkled Surfaces." *Advances in Architectural Geometry*, pp. 327-338, 2023.

[16] A. Parra Rubio★, **K. Mundilova**★, D. Preiss, E. Demaine, and N. Gershenfeld. "Kirigami Corrugations: Strong, Modular, and Programmable Plate Lattices." In *International Design Engineering Technical Conferences and Computers and Information in Engineering Conference* (Vol. 87363). American Society of Mechanical Engineers, 2023.

[17] P. Zhang, J. Chiang, X. Fan, and **K. Mundilova**. "Local Decomposition of Hexahedral Singular Nodes into Singular Curves." *Computer-Aided Design*, vol. 158, 2023. *Computer-Aided Design*, 158, 103484.

[18]☆ T. Hull, A. Lubiw, **K. Mundilova**, C. Nara, J. Tkadlec, and R. Uehara. "Quasi-Twisting Convex Polyhedra." In *Proceedings of the 34th Canadian Conference on Computational Geometry (CCCG 2022)*.

[19]☆ E. Demaine, **K. Mundilova**, and T. Tachi. "Locally Flat and Rigidly Foldable Discretizations of Conic Crease Patterns with Reflecting Rule Lines." In *International Conference on Geometry and Graphics*, pp. 185-196. Springer International Publishing, 2021.

[20] **K. Mundilova**, E. Demaine, R. Foschi, R. Kraft, R. Maleczek, and T. Tachi. "Lotus: A Curved Folding Tool for Grasshopper." In *ACADIA 2021 Realignments: Toward Critical Computation: Proceedings of the 41st Annual Conference of the Association for Computer Aided Design in Architecture*, pp. 194-203. Acadia Publishing Company, 2021.

[21]☆ O. Aichholzer, H. Akitaya, K. Cheung, E. Demaine, M. Demaine, S. Fekete, L. Kleist, I. Kostitsyna, M. Löffler, Z. Masárová, **K. Mundilova**, and C. Schmidt. "Folding Polyominoes with Holes into a Cube." Computational Geometry: Theory and Applications, vol. 93, 2021.

[22]☆ R. Foschi, R. Kraft, R. Maleczek, **K. Mundilova**, and T. Tachi. "How to Use Parametric Curved Folding Design Methods – A Case Study and Comparison." In *Proceedings of IASS Annual Symposia*, no. 23, 2020.

[23]☆ R. Maleczek, **K. Mundilova**, and T. Tachi. "Curved Crease Edge Rounding of Polyhedral Surfaces." In *Advances in Architectural Geometry*, 2020.

[24]☆ K. Czajkowski, E. Demaine, M. Demaine, K. Eppling, R. Kraft, **K. Mundilova**, and L. Smith. "Folding Small Polyominoes into a Unit Cube." In *Proceedings of the 32nd Canadian Conference on Computational Geometry (CCCG)*, 2020.

[25]☆ E. Demaine, M. Demaine, and **K. Mundilova**. "Design of Circular-Arc Curved Creases of Constant Fold Angle." *In Bridges 2020 Conference Proceedings*, pp. 1129-136, 2020.

[26] C. Jiang, **K. Mundilova**, F. Rist, J. Wallner, and H. Pottmann. "Curve-pleated Structures." *ACM Transactions on Graphics (TOG)*, 38(6), Article 169, 2019.

[27] **K. Mundilova**. "On Mathematical Folding of Curved Crease Origami: Sliding Developables and Parametrizations of Folds into Cylinders and Cones." *Computer-Aided Design*, vol. 115, 2019.

[28] **K. Mundilova**. "Curved Crease Folds of Spherical Polyhedra with Regular Faces." In *Bridges 2019 Conference Proceedings*, pp. 423-426, 2019.

[29] **K. Mundilova** and T. Wills. "Folding the Vesica Piscis." In *Bridges 2018 Conference Proceedings*, pp. 535-538, 2018.

[30] U. Hertrich-Jeromin, **K. Mundilova**, and E. Tjaden. "Channel Linear Weingarten Surfaces." *Journal of Geometry and Symmetry in Physics*, vol. 40, pp. 25–33, 2015.

Patent Applications

[31] A. Parra Rubio, K. Mundilova, D. Preiss, E. Demaine, and N. Gershenfeld. "Kirigami Corrugations: Strong, Modular, and Programmable Plate Lattices." US Patent Application 61790-084, 2023.

Theses

[32] "Gluing and Creasing Paper along Curves: Computational Methods for Analysis and Design." PhD Thesis, Massachusetts Institute of Technology, 2024.

[33] "Geometry and Interactive Design of Curved Creases." Master Thesis, TU Wien, 2017.

[34] "Lineare Weingarten Kanalflächen." Bachelor Thesis, TU Wien, 2014.

Published Software

One outcome of my research is the development of a plugin called *Lotus*, which integrates interactive design tools emerging from several projects. The associated files and demonstrations are available on my website. The plugin continues to be developed and currently includes, in addition to various supplementary utility functions, the following tools:

- *Patch-to-cylinder/cone constructions:* This group of components enables the constructions presented in [20] for connecting developable strips with cylinders and cones, as well as an operation for bending a developable strip.
- *Wrinkling paper:* This group of components enables the operations described in [15] for tessellating a mesh with non-planar facets using elements with curved creases, as well as additional utility functions.
- *Rounded corner:* Based on [23], this component transforms a polyhedral surface with planar facets into a structure with curved creases by replacing edges with cylinders and vertices with cones, which are connected via curved creases.
- *Discrete conic creases:* Building on [19], this component enables the construction of two types of discrete, foldable axial cone-nets as well as the construction of their folding motions.
- *Conic spirals:* Building on [14], this component allows the design of two types of origami spirals made from cones with planar creases.

In addition, I recently published the plug-in *CNets*. Based on [2,6], this set of components implements an intuitive design tool for cone-nets and provides auxiliary methods for parallel transformations and the generation of support structures.

List of Talks

Invited Talks

08/2026 **International Conference on Geometry and Graphics 2026** (invited by H. Koncul)
Developability and Deployability: Theory, Design, and Applications of (Semi-)Discrete Conjugate Nets
Zagreb, Croatia

05/2026 **Colloquium Applied Geometry** (invited by H. Wallner)
Developability and Deployability: Theory, Design, and Applications of (Semi-)Discrete Conjugate Nets
TU Graz, Graz, Austria

08/2025 **International Geometry Workshop** (invited by J. Wallner)
Cone-Based PQ Mesh Constructions for Interactive Design
Obergurgl, Austria

11/2024 **Computer Graphics Seminar** (invited by S. Ren)
Art-Inspired Curved Crease Origami Research
Institute of Science and Technology, Klosterneuburg, Austria

09/2024 **Workshop on Discrete Geometric Structures** (invited by C. Müller)
Art-inspired Curved Crease Origami Research
TU Wien, Vienna, Austria

08/2024 **Symposium on Origami Bridging Art Science and Industry** (invited by T. Tachi)
Art-inspired Curved Crease Origami Research
University of Tokyo, Tokyo, Japan

06/2024 **Gathering4Gardner – Celebration of Mind** (invited by B. Hearn)
Art-inspired Curved Crease Origami Research
online

05/2024 **Special Semester on Rigidity and Flexibility WS6** (invited by J. Siegele)
Art-inspired Curved Crease Origami Research
RICAM, Linz, Austria

01/2024 **AMS Special Session on Serious Recreational Mathematics** (invited by E. Demaine)
Art-inspired Curved Crease Origami Research
Joint Mathematics Meeting 2024, San Francisco, USA

08/2023 **Participation and talk at Haystack Labs** (invited by N. Gershenfeld)
Art-inspired Curved Crease Origami Research
Haystack Mountain School of Crafts, Maine, USA

04/2021 **FoldFest 2021 by Origami USA** (invited by J. Ku)
Design of Curved Creases with Lotus
online

05/2019 **Workshop on Origami and Deployable Mechanisms** (invited by J. Schönke)
On Mathematical Paper Folding
Okinawa Institute of Technology, Okinawa, Japan

Guest Lectures

02/2026 **Course VIS 2232 at Harvard Graduate School of Design** (invited by N. Nichols)
online

03/2021 **Course ARCH-581A at Pratt Institute** (invited by D. Koschitz)
online

Panel Discussions

12/2021 **DigitalFUTURES discussion "Architecture & Mathematics: How we Collaborate"**
Paneldiscussion with T. Knight, E. Demaine, und R. Maleczek
Moderated by D. Koschitz and R. Brackett III (invited by D. Koschitz)
online

Technical Paper Presentations

11/2025 **Interactive Curved Crease Origami Design Through Constructive Developable Subdivision**
Advances in Architectural Geometry 2025 Conference, Boston, USA

11/2025 **CNets: An Interactive Design Framework for Cone-Nets**
Advances in Architectural Geometry 2025 Conference, Boston, USA

08/2024 **Maclaurin Trisectrices as t-Affine Loci of the First Isogonic and Isodynamic Centers**
International Conference on Geometry and Graphics, Kitakyushu, Japan

07/2024 **Rigid-Ruling Folding Compatibility of Planar Creases**
8OSME Conference, Melbourne, Australia

07/2024 **Analysis of Huffman's Hexagonal Column with Cusps**
8OSME Conference, Melbourne, Australia

08/2022 **Locally Flat and Rigidly Foldable Discretizations of Conic Crease Patterns with Refl. Rule Lines**
International Conference on Geometry and Graphics 2022, online

11/2021 **Lotus: A curved folding tool for Grasshopper**
ACADIA 2021 Conference, online

04/2021 **Curved Crease Edge Rounding of Polyhedral Surfaces**
Advances in Architectural Geometry 2020 Conference, online

08/2020 **Design of Circular-Arc Curved Creases of Constant Fold Angle**
Bridges 2020 Conference, online

07/2019 **Spherical Polyhedra with Regular Faces**
Bridges 2019 Conference, Linz, Austria

06/2019 **On Mathematical Paper Folding**
Symposium on Solid and Physical Modelling, Vancouver, Canada

07/2018 **Folding the Vesica Piscis**
Bridges 2018 Conference, Stockholm, Sweden

Other Conference Contributions

06/2025 **(Semi-)Invariant Curves from Centers of Triangle Families**
Conference of Geometry: Theory and Application, Sopron, Hungary

11/2018 **Origami Research** (presented with Erik Demaine)
OrigaMIT Convention, MIT, Massachusetts, USA

09/2018 **Curved Crease Paper Folding with Rigid Rulings**
ESI Workshop on Rigidity and Flexibility, Vienna, Austria

06/2018 **Symmetric Folded D-Forms from a Cylinder and Two Cones**
Conference on Curves and Surfaces, Arcachon, France

06/2017 **Geometry and Interactive Design of Curved Creases**
Conference on Geometry: Theory and Application, Pilsen, Czech Republic

Community Service

Conference Organization

02/2026 **Structural Origami Gathering 2026**
Bernoulli Center, EPFL, Switzerland

Reviewing Activities

Conferences: Seventh Meeting of Origami, Science, Mathematics and Education (7OSME); Canadian Conference on Computational Geometry (CCCG2021); SIGGRAPH 2026; Pacific Graphics 2026

Journals: Journal for Geometry and Graphics; Journal of Computational Geometry; Computer Aided Geometric Design

Academic Committees and Student Representation

07/2013 – 06/2015 Elected student representative of *Technical Mathematics*, TU Wien

07/2013 – 10/2016 Substitute student member of the *Curricular Commission of Technical Mathematics*, TU Wien

01/2012 – 06/2016 Student member in the *Faculty Council of the Mathematics and Geoinformation*, TU Wien

Research Visits

09/2025 Visit of Tomohiro Tachi at the University of Tokyo, Tokyo, Japan

08/2024 Visit of Tomohiro Tachi at the University of Tokyo, Tokyo, Japan

05/2019 Visit of Tomohiro Tachi at the University of Tokyo, Tokyo, Japan

11/2018 Visit of Erik and Martin Demaine at MIT, Massachusetts, USA

05/2018 Visit of Kenneth Cheung at NASA Ames Research Center, California, USA

05/2018 Visit of Christian Müller at Caltech, California, USA

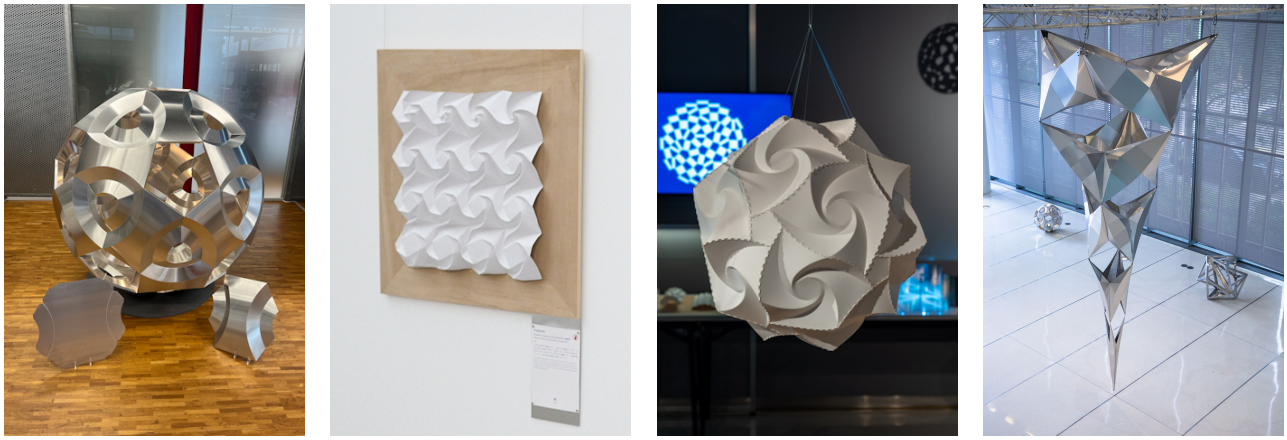
Exhibition Contributions

ongoing **MIT-Sphere** (collaboration with RnKOLEKTIVE, reproduced by ZÜND, Fig. 1a)
ZÜND Swiss Cutting Systems Exhibition Room, Altstätten, Switzerland

10/2025 – 12/2025 **Progression** (collaboration with Ekaterina Lukasheva and Tomohiro Tachi, Fig. 1b)
Connecting Artifacts Exhibition 05, The University of Tokyo, Tokyo, Japan

10/2024 **Icosahedral Shape with Conic Spirals** (collaboration with Kanata Warisaya, Fig. 1c)
Connecting Artifacts Exhibition 04, Science Museum, Tokyo, Japan

05/2023 – 09/2023 **Metallic Kusudama Exhibition** (collaboration with RnKOLEKTIVE, Fig. 1d)
MIT Media Lab, Cambridge, Massachusetts, USA



(a) MIT-Sphere. (b) Progression.[1] (c) Icosahedral shape.[2] (d) Discretized Tower.[3]

Figure: Fabricated structures exhibited in Switzerland, Japan, and the United States, respectively.

[1]Image credit: Matthew Jordan Smith.
[2]Image credit: Choku Kimura.
[3]Image credit: Jimmy Day.