

Klara Mundilova

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Education

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| 2019 – present | PhD candidate, Computer Science, Massachusetts Institute of Technology
Supervisor: Erik Demaine |
| 2017 – 2019 | PhD candidate, Technical Mathematics, TU Wien
Supervisors: Helmut Pottmann and Christian Müller |
| 2014 – 2017 | Master of Science, Technical Mathematics, TU Wien
Thesis Title: Geometry and Interactive Design of Curved Creases
Supervisor: Helmut Pottmann
Graduation with Distinction |
| 2010 – 2014 | Bachelor of Science, Technical Mathematics, TU Wien
Thesis Title: Lineare Weingarten Kanalflächen
Supervisor: Udo Hertrich-Jeromin |

Work Experience

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| 10/2020 – 04/2021 | Lecturer and Project Assistant (8h/week)
<i>Institute for Structure and Design, University of Innsbruck, Austria</i> <ul style="list-style-type: none">– Co-supervised a seminar for graduate students for the design and fabrication of curved crease origami shapes.– Collaborated with architects and material scientists on the development of large-scale wooden structures with curved creases. |
| 10/2017 – 09/2019 | University and FWF Project Assistant (30h – 40h/week)
<i>Institute of Discrete Mathematics and Geometry, TU Wien, Austria</i> <ul style="list-style-type: none">– Developed mathematical approaches to describe curved crease origami shapes, such as the folded Vesica Piscis.– Taught a geometry course for graduate architecture students in English and multiple undergraduate geometry recitations. |
| 08/2015 – 02/2017 | Programmer (20h – 28.5h/week)
<i>Rechenraum, Vienna, Austria</i> <ul style="list-style-type: none">– Developed and implemented geometric data processing algorithms in C# and C++. |
| 08/2014 – 09/2017 | Teaching Assistant (12.5h – 15h/week)
<i>Institute of Discrete Mathematics and Geometry, TU Wien, Austria</i> <ul style="list-style-type: none">– Taught multiple introductory geometry recitations and assisted with the supervision of exams. |

Teaching

Massachusetts Institute of Technology, USA

6.042	Mathematics for Computer Science Spring 2021, Fall 2021, Fall 2022	TA
6.849	Geometric Folding Algorithms Fall 2020	TA

University of Innsbruck, Austria

847383	Structure and Geometry Fall 2020	Seminar
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TU Wien, Austria

104.361	Geometry Optimization and Discretization Fall 2017	Lecture
104.404	Projective Geometry Spring 2018	Recitation
104.361	Geometry Optimization and Discretization Fall 2014, Fall 2015 and Fall 2016	Recitation
113.077	Basic Course in Geometry for Architects Fall 2014, Spring 2015, Fall 2015, Spring 2016, Spring 2017	Recitation
104.218	Preparatory Course in Descriptive Geometry Fall 2015 and Fall 2016	Recitation

Awards and Fellowships

2022	American Association of University Women International Fellowship
2022	Graduate Women International Fay Weber Award
2019	Akamai MIT Presidential Graduate Fellowship
2018	Christiane Hörbiger Preis

Publications

Papers

- [1] T. Hull, A. Lubiw, K. Mundilova, C. Nara, J. Tkadlec, and R. Uehara, *Quasi-Twisting Convex Polyhedra*, 34th Canad. Conf. Comput. Geom., Aug. 2022.
- [2] E. Demaine, K. Mundilova, and T. Tachi, *Locally Flat and Rigidly Foldable Discretizations of Conic Crease Patterns with Reflecting Rule Lines*, to appear in Proceedings of ICGG, 2022.

- [3] K. Mundilova, E. Demaine, R. Foschi, R. Kraft, R. Maleczek, and T. Tachi, *Lotus: A curved folding tool for Grasshopper*, to appear in Proceedings of ACADIA, 2021.
- [4] R. Foschi, R. Kraft, R. Maleczek, K. Mundilova and T. Tachi, *Comparison of computational curved folding design methods*, Proceedings of IASS, 2021.
- [5] R. Maleczek, K. Mundilova and T. Tachi, *Curved Crease Edge Rounding of Polyhedral Surfaces*, Proceedings of the AAG Conference, 2020.
- [6] E. Demaine, M. Demaine and K. Mundilova, *Design of Circular-Arc Curved Creases of Constant Fold Angle*, Proceedings of Bridges 2020: Mathematics, Art, Music, Architecture, Education, Culture, p. 129–136, 2020.
- [7] C. Jiang, K. Mundilova, F. Rist, J. Wallner, H. Pottmann, *Curve-pleated structures*. ACM Trans. Graph. 38(6): 169:1-169:13, 2019.
- [8] K. Mundilova, *On mathematical folding of curved crease origami: Sliding developables and parametrizations of folds into cylinders and cones*, Computer-Aided Design, p. 34–41, Volume 115, 2019.
- [9] K. Mundilova, *Curved Crease Folds of Spherical Polyhedra with Regular Faces*, Proceedings of Bridges 2019: Mathematics, Art, Music, Architecture, Education, Culture, p. 423–426, 2019.
- [10] O. Aichholzer, H. Akitaya, K. Cheung, E. Demaine, M. Demaine, S. Fekete, L. Kleist, I. Kostitsyna, M. Löffler, Z. Masárová, K. Mundilova, C. Schmidt, *Folding Polyominoes with Holes into a Cube*, CCCG, p. 164-170, 2019.
- [11] K. Mundilova and T. Wills, *Folding the Vesica Piscis*, Proceedings of Bridges 2018: Mathematics, Art, Music, Architecture, Education, Culture, p. 535–538, 2018.
- [12] U. Hertrich-Jeromin, K. Mundilova and E. Tjaden, *Channel Linear Weingarten Surfaces*, J. Geom. Symmetry Phys. 40 (2015), 25–33. Preprint on arXiv:1507.03394.

Theses

- [13] K. Mundilova, *Geometry and Interactive Design of Curved Creases*, Master Thesis, TU Wien.
- [14] K. Mundilova, *Lineare Weingarten Kanalflächen*, Bachelor Thesis, TU Wien.

Talks

1. *Locally Flat and Rigidly Foldable Discretizations of Conic Crease Patterns with Reflecting Rule Lines*, International Conference on Geometry and Graphics 2022, August 2022.
2. *Lotus: A curved folding tool for Grasshopper*, ACADIA Conference, November 2021.
3. *Architecture & Mathematics: How we Collaborate*, Invited panelist at the DigitalFUTURES Talk with T. Knight, E. Demaine, and R. Maleczek, moderated by D. Koschitz and R. Brackett III, December 2021.
4. *Curved Crease Edge Rounding of Polyhedral Surfaces*, Advances in Architectural Geometry Conference 2020, online, April 2021.
5. *Design of Curved Creases with Lotus*, FoldFest 2021, April 2021.
6. *Lotus: Grasshopper components for curved folding*, Guest Lecture, Pratt Institute of Design, March 2021.

7. *Design of Circular-Arc Curved Creases of Constant Fold Angle*, Bridges Conference, online, 2020.
8. *Spherical Polyhedra with Regular Faces*, Bridges Conference, Linz, Austria, 2019.
9. *On Mathematical Paper Folding*, the Symposium on Solid and Physical Modelling, Vancouver, Canada, 2019.
10. *On Mathematical Paper Folding*, the Symposium of Origami and Deployable Mechanisms, Okinawa, Japan, 2019.
11. *Origami Research* (presented with Erik Demaine), the OrigaMIT Convention, Boston, Massachusetts, 2018.
12. *Curved Crease Paper Folding with Rigid Rulings*, ESI Workshop on Rigidity and Flexibility of Geometric Structures, Vienna, 2018.
13. *Folding the Vesica Piscis*, Bridges Conference, Stockholm, Sweden, 2018.
14. *Symmetric Folded D-Forms from a Cylinder and Two Cones*, Conference on Curves and Surfaces, Arcachon, France, 2018.
15. *Geometry and Interactive Design of Curved Creases*, Conference on Geometry, Pilsen, Czech Republic, 2017.

Extracurricular Activities

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| 07/2013 – 06/2015 | Elected Student Representative of Technical Mathematics, TU Wien |
| 07/2013 – 10/2016 | Student member of the Curricular Commission of Technical Mathematics, TU Wien |
| 01/2012 – 06/2016 | Student member in the Council of the Faculty of Mathematics and Geoinformation, TU Wien |