Dr. Ruben Wiersma

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I am a postdoctoral researcher at ETH Zürich in the Interactive Geometry Lab (IGL). My interests include geometry processing, optimization, and machine learning. I received my doctorate *cum laude* from the CGV group at the TU Delft and interned at Adobe as a research intern, studying material capture with differentiable rendering. I have a soft spot for working with creatives and enjoy working on my own short films, design and music.

SKILLS AND QUALITIES

Python • PyTorch • Numpy • JAX • C++ • Mitsuba • Blender • Adobe CC • Git • Linux • macOS • Machine Learning • Strong math understanding • Ability to understand and analyze complex systems • Eye for clean, maintainable, and understandable code - example project • Creative thinking • Presentation and communication - example presentation • Perseverance

EXPERIENCE

[2024 - Present] **ETH Zürich**, *Postdoctoral Researcher*

- Research on machine learning and geometry processing at the Interactive Geometry Lab (IGL).
- Associate Lecturer in Shape Modelling and Geometry Processing course.

[Summer 2023] **Adobe**, *Research Internship*

- Investigating material and appearance capture, mentored by Valentin Deschaintre and Julien Philip.

[2019] **TU Delft**, *Teaching Assistant*

- Developed assignments for new datamining and Machine Learning courses and lab assistance.

[2017] **GeoPhy**, *Development Internship*

- Developed end-to-end machine learning solution for estimating real-estate value.

[2012 - 2022] **Wiersma Brothers, freelance**, *Video producer*, *graphic designer*

- Founder, working on short films, graphic design and web development.

EDUCATION

[2019 - 2024] **TU Delft**, *PhD Computer Graphics* **Cum Laude**

Supervised by Elmar Eisemann, Klaus Hildebrandt and Joris Dik

- Dissertation: Intrinsic approaches to learning and computing on curved surfaces
- Geometry processing and machine learning (4 SIGGRAPH publications).
- Applications of computer graphics and machine learning for painting analysis (1 journal, 1 conference).
- Responsibilities: lecturing, lab assistance, creating assignments, thesis supervision (10 BSc, 3 MSc).

[2017 - 2019] **TU Delft**, *MSc Computer Science* **Cum Laude (GPA 4.0)**

- Focus on computer graphics and machine learning. Thesis (grade 9/10) "Harmonic Surface Networks".

[2014 - 2017] **TU Delft**, *BSc Computer Science* **Cum Laude (GPA 4.0)**

- Focus on multimedia and data science. Thesis on "Automating Valuations for Real-Estate".

[2013 - 2014] **TU Delft**, *Propedeuse Industrial Design Engineering* **Cum Laude**

SERVICE

[2024 - 2025] **Symposium on Geometry Processing (SGP)**, *Committee member*

[2024 - present] **SIGGRAPH Thesis Fast Forward**, *Chair*

[Summer 2022] **MIT Summer Geometry Initiative (SGI)**, *Mentor*

- Mentored fellows of SGI in a project on "Learning on Surfaces"

[2020 - present] **SIGGRAPH research and career development committee**, *Committee member*

- Organized Conference Coffee at SIGGRAPH '21, SIGGRAPH Asia '21 and SIGGRAPH '22.
- Production/writing for website, Thesis Fast Forward, and SIGGRAPH/ToG writing guides.

[2020 - present] **Reviewer**

- SIGGRAPH, SIGGRAPH Asia, ACM Transactions on Graphics, Pacific Graphics, TMAA, Computers & Graphics

[2014 - 2017] **Happietaria**, **Hartige Samaritaan**, *Restaurant staff manager*, *PR and communications manager*

- Pop-up restaurant for charity, lasting one month, raised €78.913.

PUBLICATIONS

[12.] **SIGGRAPH '25**, *Uncertainty for SVBRDF Acquisition using Frequency Analysis*, July 2025

R. Wiersma, *J. Philip, M. Hasan, K. Mullia, F. Luan, E. Eisemann, V. Deschaintre*

[11.] **SIGGRAPH '25 (journal)**, *TetWeave: Isosurface Extraction using On-The-Fly Delaunay Tetrahedral Grids for Gradient-Based Mesh Optimization*, July 2025

A. Binninger, **R. Wiersma**, *P. Herholz, O. Sorkine-Hornung*

[10.] **PhD Thesis** *Intrinsic approaches to learning and computing on curved surfaces*, October 2024

R. Wiersma

[9.] **SIGGRAPH '23**, *A Fast Geometric Multigrid Method for Curved Surfaces*, July 2023

R. Wiersma, *A. Nasikun (equal contribution); E. Eisemann and K. Hildebrandt*

[8.] **Digital Humanities Quarterly**, *The case of the golden background, a virtual restoration and a physical reconstruction of the medieval Crucifixion of the Lindau Master (c. 1425)*, February 2023

L. Tissen, S. Frequin, **R. Wiersma**

[7.] **GCH '22**, *A New Baseline for Feature Description on Multimodal Imaging of Paintings* **Best Paper**, September 2022

J. vd Toorn, **R. Wiersma**, *A. Vandivere, R. Marroquim and E. Eisemann*

[6.] **SIGGRAPH '22 (journal)**, *DeltaConv: Anisotropic Operators for Geometric Deep Learning on Point Clouds*, July 2022

R. Wiersma, *A. Nasikun, E. Eisemann and K. Hildebrandt*

[5.] **CVPR '22**, *Deep Vanishing Point Detection: Geometric priors make dataset variations vanish*, July 2022

Y. Lin, **R. Wiersma**, *S. L. Pintea, K. Hildebrandt, E. Eisemann and J. C. van Gemert*

[4.] **SIGGRAPH '20 (journal)**, *CNNs on Surfaces using Rotation-Equivariant Features*, July 2020

R. Wiersma, *E. Eisemann and K. Hildebrandt*

[3.] **Heritage Science**, *Revealing unique inscriptions of in Doodencel 601 of the Oranjehotel*, July 2020

J. Wembe, R. van den Brink, E. Mooldijk, N. Feirabend, **R. Wiersma**, *J. Sietsma and J. Dik*

[2.] **SIGCSE '20**, *Are We Consistent? The Effects of Digitized Exams Grading*, February 2020

G. Migut and **R. Wiersma**

[1.] **Master's thesis**, *Harmonic Surface Networks*, October 2019

R. Wiersma

GRANTS

Google Cloud Research credits

October 2019, October 2020, May 2024

TALKS

5th February 2025, **Mathematical Imaging and Surface Processing Workshop Oberwolfach**

Intrinsic Approaches to Learning and Computing on Curved Surfaces

February 2024, **ISTA Vienna, ETH Zürich, INRIA Sophia Antipolis**

Invited talk: Intrinsic Approaches to Learning and Computing on Curved Surfaces

October 2023, **Johns Hopkins University**

Lecture: Introduction to Blender for Students in Computer Graphics

6th April 2022, **UChicago 3DL group**

Invited talk: DeltaConv: Anisotropic Operators for Geometric Deep Learning on Point Clouds

29th September 2021, **Mathematics and Art symposium at DMV ÖMG Annual Conference 2021**

Symposium talk: Communicating Perspective in 17th Century Paintings to Modern Audiences.

17th May 2021, **Utrecht University**

Lecture on applications of computer graphics to painting analysis for bachelor students in art history.

27th September 2020, **PI Lab TU Delft**

Seminar talk: applications of computer graphics to painting analysis.

14th May 2020, **Stanford Guibas Lab**

Invited talk: CNNs on Surfaces using Rotation-Equivariant Features