Ruben Wiersma

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I am a fourth-year PhD student in computer graphics at the TU Delft. My interests include geometry processing, rendering, simulation, and machine learning. I interned at Adobe in San Francisco 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 [filmmaking projects, design and music](#).

SKILLS AND QUALITIES

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 • C++ • Python • Linux • macOS • Blender • Adobe CC • Piano

EDUCATION

[2019 - present] PhD Computer Graphics

TU Delft Supervised by Elmar Eisemann, Klaus Hildebrandt and Joris Dik

- Geometry processing and machine learning (3 SIGGRAPH publications).
- Studying applications of computer graphics and machine learning for painting analysis (1 journal, 1 conference publication).
- Responsibilities: lecturing, lab assistance, creating assignments, thesis supervision (10 BSc, 3 MSc).
- Toolkit: Python, PyTorch, JAX, C++, OpenGL.

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

TU Delft

- Focus on computer graphics and machine learning.
- Thesis (grade 9/10) "Harmonic Surface Networks" [[PDF download](#)].
- Toolkit: C++, Python, PyTorch.

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

TU Delft

- Focus on multimedia and data science.
- Thesis on "Automating Valuations for Real-Estate" [[PDF download](#)].

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

TU Delft

EXPERIENCE

[2023] Research Internship

Adobe

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

[2019] Teaching Assistant

TU Delft

- Developed assignments for new datamining and Machine Learning courses and lab assistance.
- Toolkit: Python, Jupyter, NumPy

[2017] Development Internship

GeoPhy

- End-to-end machine learning solution for estimating real-estate value.
- Toolkit: Scala, Apache Kafka.

[2012 - present] Video producer, graphic designer

Wiersma Brothers, Torchbearers International, freelance

- Wiersma Brothers: founder, working on short films, graphic design and web development.
- Torchbearers International: creative director and web development. View samples of my work.

[2008-2010] Programmer

GoPublic

- Back-end developer for websites and and business administration webapps.
- Toolkit: PHP, JavaScript, HTML.

SERVICE

[Summer 2022] Summer Geometry Initiative (SGI) mentor

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

[2020 - present] Committee member

SIGGRAPH research and career development committee

- 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

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

[2013 - 2019] Committee member, committee chair

C.S.R. Delft (student association)

- Organized festivities, academic debates and hosted lectures (20-300 participants).
- Produced several narrative short films and an anniversary book.

[2014 - 2017] Restaurant staff manager, PR

Happietaria, Hartige Samaritaan: pop-up restaurants for charity, lasting one month.

- Together with all the volunteers for Happietaria, raised €78.913.
- Staff and communications manager for Hartige Samaritaan (November 2014, February 2017).

PUBLICATIONS

[SIGGRAPH '23] <u>A Fast Geometric Multigrid Method for Curved Surfaces</u>

July 2023

[GCH '22] <u>A New Baseline for Feature Description on Multimodal Imaging of Paintings</u>

Best Full Paper Award *September 2022*

[SIGGRAPH '22] <u>DeltaConv: Anisotropic Operators for Geometric Deep Learning on Point Clouds</u>

July 2022

[CVPR '22] <u>Deep Vanishing Point Detection: Geometric priors make dataset variations vanish</u>

July 2022

[SIGGRAPH '20] <u>CNNs on Surfaces using Rotation-Equivariant Features</u>

July 2020

[Heritage Science] <u>Revealing unique inscriptions of in Doodencel 601 of the Oranjehotel</u>

July 2020

[SIGCSE '20] <u>Are We Consistent? The Effects of Digitized Exams Grading</u>

February 2020

[Master's thesis] <u>Harmonic Surface Networks</u>

October 2019

GRANTS

Google Cloud Research credits

October 2019, October 2020

TALKS

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: <u>Communicating Perspective in 17th Century Paintings to Modern Audiences</u>.

17th May 2021, Utrecht University

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

27th September 2020, <u>PI Lab TU Delft</u>

Seminar talk: applications of computer graphics to painting analysis.

14th May 2020, Stanford Guibas Lab

Invited talk: CNNs on Surfaces using Rotation-Equivariant Features