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 am currently a research intern at Adobe in San Francisco, studying material capture with differentiable rendering. I have a soft spot for working on tools for artistic work 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

- Studying fundamentals and applications of geometric deep learning (two SIGGRAPH publications).
- Studying applications of computer graphics and machine learning for painting analysis.
- 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] A Fast Geometric Multigrid Method for Curved Surfaces

July 2023

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

Best Full Paper Award *September 2022*

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

July 2022

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

July 2022

[SIGGRAPH '20] CNNs on Surfaces using Rotation-Equivariant Features

July 2020

[Heritage Science] Revealing unique inscriptions of in Doodencel 601 of the Oranjehotel

July 2020

[SIGCSE '20] Are We Consistent? The Effects of Digitized Exams Grading

February 2020

[Master's thesis] Harmonic Surface Networks

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: 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