

Mengqi (Mandy) Xia

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Research Interests

Physically-based Rendering, Material Models, Differentiable Rendering, Inverse Rendering.

Education

Cornell University Sept 2016 – July 2022

- Ph.D. in Computer Science
- Advisor: **Prof. Steve Marschner**

University of California, Los Angeles (UCLA) Sept 2012 – June 2016

- B.S. in Applied Mathematics with specialization in computing
- Graduated with Summa Cum Laude.

Academic and Industry Experience

Yale University, New Haven, CT July 2024 – Present

- Postdoctoral researcher working at the Computer Graphics Lab with **Prof. Julie Dorsey** and **Prof. Holly Rushmeier**

École Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland Sept 2022 – June 2024

- Postdoctoral researcher working at the Realistic Graphics Lab with **Prof. Wenzel Jakob**

Facebook Reality Lab, Remote May - Sept 2021, May - Sept 2020

- Research intern working with **Dr. Christophe Hery**

Pixar Animation Studios, Emeryville, CA June - Sept 2018

- Research intern working with **Dr. Christophe Hery** and **Dr. Mark Meyers**

Publications

A Practical Wave Optics Reflection Model for Hair and Fur

Mengqi (Mandy) Xia, Bruce Walter, Christophe Hery, Olivier Maury, Eric Michielssen, Steve Marschner
ACM Transactions on Graphics (Proceedings of SIGGRAPH 2023)

A Full-Wave Reference Simulator for Computing Surface Reflectance

Yunchen Yu, **Mengqi (Mandy) Xia**, Bruce Walter, Eric Michielssen, Steve Marschner
ACM Transactions on Graphics (Proceedings of SIGGRAPH 2023)

Iridescent Water Droplets Beyond Mie Scattering

Mengqi (Mandy) Xia, Bruce Walter, Steve Marschner
Computer Graphics Forum 42 (4) (Proceedings of Eurographics Symposium on Rendering 2023)

A Hyperspectral Space of Skin Tones for Inverse Rendering of Biophysical Skin Properties

Carlos Aliaga, **Mengqi (Mandy) Xia**, Hao Xie, Adrian Jarab, Gustav Braun, Christophe Hery
Computer Graphics Forum 42 (4) (Proceedings of Eurographics Symposium on Rendering 2023)

A Wave Optics Based Fiber Scattering Model

Mengqi (Mandy) Xia, Bruce Walter, Eric Michielssen, David Bindel, Steve Marschner
ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia 2020)

Gaussian Product Sampling for Rendering Layered Materials

Mengqi (Mandy) Xia, Bruce Walter, Christophe Hery, Steve Marschner

Computer Graphics Forum 39 (1), 420-435 (2020)

An Efficient Primal-Dual Method for the Obstacle Problem

Dominique Zosso, Braxton Osting, **Mengqi (Mandy) Xia**, Bruce Walter, Stanley Osher

Journal of Scientific Computing 73.1: 416-437 (2017)

Physically Realistic Rendering of Complex Materials Using Wave Optics

Mengqi (Mandy) Xia

Ph.D. thesis, 2022

Teaching

CS5625 Interactive Computer Graphics, Cornell University

Jan - May, 2019

- Teaching Assistant
- Held office hours, graded homework and exams.

CS4620 Introduction to Computer Graphics, Cornell University

Jan - May, 2018

- Teaching Assistant
- Helped design exam problems, written and programming homework.
- Held office hours, graded homework and exams.
- Led rendering reading group discussion among course staff.

CS1112 Introduction to Computing Using MATLAB, Cornell University

Sept 2016 - May 2017

- Teaching Assistant
- Led discussion sessions, held office hours, and graded homework and exams.

Mentoring

Rachel Liang, M.S., Yale University

Sept 2024 - May 2025

- Master thesis: *Hyperspectral Inverse Rendering*

Jonathan Chuah, M.S., EPFL

Feb - June 2024

- Research project: *Differentiable Lens Design*

Joachiam Favre, B.S., EPFL

Sept 2023 - June 2024

- Research project: *Uncertainty Estimation in Forward and Inverse Rendering*

Yuxin Wang, M.S., EPFL

Feb - June 2023

- Research project: *Line by Line Absorption Coefficient Solver*

Ningwei Ma, M.S., EPFL

Sept 2022 - Jan 2023

- Research project: *Hair Shading in Mitsuba 3*

Helen Wang, B.S., Cornell University

Sept 2021 - May 2022

- Research project: *Wavefront Tracing*

Ryan Lefkowitz, B.S., Cornell University

Jan - May 2020

- Research project: *Elliptical Fiber Rendering*

Jeremy Paton, B.S., Cornell University

Jan - May 2017

- Research project: *Procedural Modeling*

Invited Talks

Physically Realistic Rendering of Complex Materials Using Wave Optics

- Stanford Computational Imaging Lab Dec, 2023
- Carnegie Mellon University Computer Graphics Group Dec, 2023
- University of Zurich, Switzerland Mar, 2023
- Pixel Cafe Seminar, University of California San Diego Jan, 2022

• Cornell CS Colloquium	Sept, 2021
A Practical Wave Optics Reflection Model for Hair and Fur	SIGGRAPH 2023
Iridescent Water Droplets Beyond Mie Scattering	EGSR 2023
Gaussian Product Sampling for Rendering Layered Materials	Eurographics 2021
A Wave Optics Based Fiber Scattering Model	SIGGRAPH Asia 2020

Honors & Awards

WiGRAPH Rising Stars in Computer Graphics, co-located with SIGGRAPH	2022-2023
Rising Stars in EECS, University of California, Berkeley	Nov, 2020
Travel Grant to Grace Hopper Conference, Cornell University	Oct, 2016
Dean's Honors List, University of California, Los Angeles	2012-2016
Best Visualization Honorable Mention, Datafest, Los Angeles	May 2014

Professional Services

- **Technical papers committee member** for SIGGRAPH 2025
- **Reviewer** for SIGGRAPH, SIGGRAPH Asia, Eurographics, Computer Graphics Forum, Pacific Graphics, Journal of Computer Graphics Techniques, Computers & Graphics, The Visual Computer, Journal of Quantitative Spectroscopy and Radiative Transfer.