

# Guangyan Cai

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## Education

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### University of California, Irvine

*Ph.D Candidate in Computer Science*

o Advisor: Shuang Zhao

Irvine, CA

2020–Present

### University of California, San Diego

*B.S. in Computer Science*

o Advisor: Ravi Ramamoorthi

o Cumulative GPA: 3.6 / 4.0 (Major GPA: 3.9 / 4.0)

o Undergraduate Awards for Excellence in Research: 2020

o Provost's Honors: 2016-2020

La Jolla, CA

2016–2020

## Experience

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### Meta Reality Labs

*Research Scientist Intern, Graphics*

o Investigated the baking artifacts in material reconstruction with inverse rendering and proposed a method to mitigate them.

o Participated in building a hybrid pipeline that combines NeRF and physics-based differentiable rendering to do high quality 3D reconstruction.

o Showcased our reconstruction results at Meta Connect 2022 (starting at 1:13:20).

Redmond, WA

Jun 2022 - Sep 2022

## Publications

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- [1] **Guangyan Cai**, Kai Yan, Zhao Dong, Ioannis Gkioulekas, and Shuang. Zhao. 2022. Physics-based inverse rendering using combined implicit and explicit geometries. *Computer Graphics Forum (EGSR 2022)*, 41, 4, 129–138.
- [2] Lifan Wu\*, **Guangyan Cai\***, Ravi Ramamoorthi, and Shuang Zhao. 2021. Differentiable time-gated rendering. *ACM Trans. Graph. (SIGGRAPH Asia 2021)*, 40, 6, Article 287, (December 2021), 16 pages. \* equal contribution.
- [3] Lifan Wu, **Guangyan Cai**, Shuang Zhao, and Ravi Ramamoorthi. 2020. Analytic spherical harmonic gradients for real-time rendering with many polygonal area lights. *ACM Trans. Graph. (SIGGRAPH 2020)*, 39, 4, Article 134, (August 2020), 14 pages.

## Reviewer

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Eurographics: 2022

## Teaching

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CS112 Introduction to Computer Graphics: TA

2021 Fall, UCI

CS143A Principles of Operating Systems: TA

2021 Spring, UCI

<b>CS143B Project in Operating System Organization:</b> TA	<i>2021 Winter, UCI</i>
<b>CS143B Project in Operating System Organization:</b> Reader	<i>2020 Fall, UCI</i>
<b>CSE168 Computer Graphics II - Rendering:</b> Tutor	<i>2020 Spring, UCSD</i>
<b>CSE167 Computer Graphics:</b> Tutor	<i>2019 Fall &amp; 2020 Winter, UCSD</i>

## **Skills**

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**Programming Languages:** C++, Python, Java,  $\text{\LaTeX}$

**Software and Applications:** NumPy, PyTorch, Matplotlib, Enoki, Mitsuba, Blender