

## Education

- 2013 - 2018 **University of California, Berkeley**  
Ph.D. in Computer Science  
Advisor: Prof. Ravi Ramamoorthi  
Dissertation: *Physically-based Modeling and Rendering of Complex Visual Appearance*
- 2009 - 2013 **Tsinghua University, Beijing, China**  
B.E. in Computer Science and Technology  
Advisors: Prof. Shi-Min Hu and Prof. Kun Xu  
Thesis: *A Survey on Real-time Soft Shadow Rendering Techniques*

## Employment

- Since 2018 **Assistant Professor**  
Department of Computer Science  
University of California, Santa Barbara
- Summer 2017 **Intern at NVIDIA, Redmond**  
Topic: Real-time ray tracing and reconstruction
- Summer 2016 **Intern at Weta Digital, Wellington**  
Topic: Photorealistic cloth appearance modeling with ply level details
- Summer 2015 **Intern at Autodesk, San Francisco**  
Topic: Pre-computed real-time glints rendering
- Summer 2014 **Technical intern at Walt Disney Animation Studios, Burbank**  
Topic: Volumetric hair modeling and rendering for production

## Research Interests and Impact

My research is in Computer Graphics, mainly aimed at rendering photo-realistic visual appearance at real world complexity, building theoretical foundations mathematically and physically to reveal the principles of the visual world. My research interests include appearance modeling, real-time ray tracing, sampling and reconstruction theory, volumetric scattering and light transport algorithms.

I have brought original research topics to Computer Graphics, such as detailed rendering from microstructure and real-time sampling and reconstruction for ray tracing. During my Ph.D. study, I have published a record-breaking number of 7 first authored ACM SIGGRAPH/ACM TOG papers. And I won the SIGGRAPH Outstanding Doctoral Dissertation Award in 2019.

## Teaching

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|-------------|--|----------------|
| Spring 2019 | CS180: Introduction to Computer Graphics               | Instructor     |
| Winter 2019 | CS291A: Real-Time High Quality Rendering               | Instructor     |
| Fall 2018   | GAMES Webinar: Rendering Tutorial                      | Guest lecturer |
| Fall 2018   | Introduction to Computer Graphics at Peking University | Guest lecturer |
| 2014 - 2018 | CSE167x: Computer Graphics on edX                      | Course staff   |

Spring 2018	CS184 and CS284A: Computer Graphics	Guest lecturer & TA
Spring 2017	CS184 and CS284A: Computer Graphics	Guest lecturer & TA
Fall 2011	Algorithms & Data Structures at Tsinghua University	Undergraduate TA
Fall 2009	Introduction to Programming at Tsinghua University	Undergraduate TA

## Selected Honors and Awards

Awards	ACM SIGGRAPH Outstanding Doctoral Dissertation Award	2019
	C.V. Ramamoorthy Distinguished Research Award	2018
Fellowships	NVIDIA Graduate Fellowship	2017 - 2018
	Extraordinary Performance Scholarship	2011 - 2013
	National Scholarship	2010 - 2011
Production	<i>War for the Planet of the Apes</i> : animal fur appearance model	2016
	Nominee of Oscar best visual effects award	
	<i>Autodesk Fusion 360</i> : pre-computed real-time glints rendering	2015
	<i>Zootopia</i> : volumetric hair scattering simulation	2014
Contest	Silver Medal, ACM/ICPC 2010-2011 Programming Contest, Harbin Regional	2010

## Media/Press Coverage

Press Releases:	Apple News, Plazma, Digital Trends, Engadget and Gizmodo	2018
	AI is Making More Realistic CG Animal Fur	
Two Minute Papers		2017
	#183: Photorealistic Fur With Multi-Scale Rendering	
	#193: Light Transport on Specular Microstructure	
SIGGRAPH Asia 2017 Cover/Title page		2017
	A BSSRDF Model for Efficient Rendering of Fur with Global Illumination	
SIGGRAPH 2017 Technical Papers Preview Trailer		2017
	An Efficient and Practical Near and Far Field Fur Reflectance Model	
Press Releases:	UCSD, PhysOrg, Digital Trends, Eureka Alert and Tech Crunch	2016
	Position-Normal Distributions for Efficient Rendering of Specular Microstructure	
Press Releases:	4Gamer (Japanese), Tencent (Chinese)	2015
	Physically-Accurate Fur Reflectance: Modeling, Measurement and Rendering	
SIGGRAPH 2014 Technical Papers Preview Trailer		2014
	Rendering Glints on High-Resolution Normal-Mapped Specular Surfaces	
	Discrete Stochastic Microfacet Models	

## Professional Services

Committee	Computational Visual Media (CVM) Program Committee	2020
	SIGGRAPH Asia Technical Briefs and Posters Committee	2019
	Eurographics (EG) Short Papers International Program Committee (IPC)	2019
	Eurographics Symposium on Rendering (EGSR) IPC	2019
	Computer-Aided Design and Computer Graphics (CAD/Graphics) IPC	2019
Peer Reviews	ACM SIGGRAPH	
	ACM SIGGRAPH Asia	
	ACM Transactions on Graphics (ToG)	
	Eurographics Symposium on Rendering (EGSR)	
	IEEE Transactions on Visualization and Computer Graphics (TVCG)	

Computer Graphics Forum (CGF)  
Pacific Graphics (PG)  
Computational Visual Media (CVM)  
Journal of Computer Science and Technology (JCST)

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## Departmental Services

Graduate Admissions Committee 2018 - 2019  
Undergraduate Student Affairs Committee 2018 - 2019

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## Selected Talks

Invited Talks

Towards Ultimate Realism in Rendering 2019  
SIGGRAPH 2019, Los Angeles

Next Generation Rendering: Photorealism and Speed 2018  
Tsinghua University, Peking University, University of Science and Technology of China,  
Zhejiang University, Microsoft Research Asia, Beihang University,  
Nanjing University of Science and Technology, Nanjing University

Real-Time Ray Tracing: Challenges and Opportunities 2018  
UCSD Center for Visual Computing

Physically-based Modeling and Rendering of Complex Visual Appearance 2018  
Adobe, San Jose

Distance-aware Filtering For Physically-based Monte Carlo Rendering Reconstruction 2017  
NVIDIA, Redmond

Industrial Approaches for Real-time Ray Tracing 2017  
UCSD Center for Visual Computing

Physically-Accurate Fur Reflectance: Modeling, Measurement and Rendering 2016  
UCSD Center for Visual Computing

Real-time Soft Shadows: Principles and Challenges 2013  
Distinguished Undergraduate Thesis Seminar, Tsinghua University

Intern talks

Pre-computed Real-time Rendering of Imperfect Surfaces, Autodesk 2015  
Physically-based Rendering of Glints, Walt Disney Animation Studios 2014

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## Publications

SIGGRAPH/ToG Fractional Gaussian Fields for Modeling and Rendering of Spatially-Correlated Media  
Jie Guo, Yanjun Chen, Bingyang Hu, **Ling-Qi Yan**, Yanwen Guo, Yuntao Liu  
ACM Transactions on Graphics 38(4) [SIGGRAPH 2019]

Accurate Appearance Preserving Prefiltering for Rendering Displacement-Mapped Surfaces  
Lifan Wu, Shuang Zhao, **Ling-Qi Yan**, Ravi Ramamoorthi  
ACM Transactions on Graphics 38(4) [SIGGRAPH 2019]

Rendering Specular Microgeometry with Wave Optics  
**Ling-Qi Yan**, Miloš Hašan, Bruce Walter, Steve Marschner, Ravi Ramamoorthi  
ACM Transactions on Graphics 37(4) [SIGGRAPH 2018]

A BSSRDF Model for Efficient Rendering of Fur with Global Illumination  
**Ling-Qi Yan**, Weilun Sun, Henrik Wann Jensen, Ravi Ramamoorthi  
ACM Transactions on Graphics 36(6) [SIGGRAPH Asia 2017]

An Efficient and Practical Near and Far Field Fur Reflectance Model  
**Ling-Qi Yan**, Henrik Wann Jensen, Ravi Ramamoorthi

ACM Transactions on Graphics 36(4) [SIGGRAPH 2017]

Antialiasing Complex Global Illumination Effects in Path-space

Laurent Belcour, **Ling-Qi Yan**, Ravi Ramamoorthi, Derek Nowrouzezahrai

ACM Transactions on Graphics 36(1) [2016, Presented at SIGGRAPH 2017]

Position-Normal Distributions for Efficient Rendering of Specular Microstructure

**Ling-Qi Yan**, Miloš Hašan, Steve Marschner, Ravi Ramamoorthi

ACM Transactions on Graphics 35(4) [SIGGRAPH 2016]

Physically-Accurate Fur Reflectance: Modeling, Measurement and Rendering

**Ling-Qi Yan**, Chi-Wei Tseng, Henrik Wann Jensen, Ravi Ramamoorthi

ACM Transactions on Graphics 34(6) [SIGGRAPH Asia 2015]

Fast 4D Sheared Filtering for Interactive Rendering of Distribution Effects

**Ling-Qi Yan**, Soham Uday Mehta, Ravi Ramamoorthi, Fredo Durand

ACM Transactions on Graphics 35(1) [2015, Presented at SIGGRAPH 2016]

Rendering Glints on High-Resolution Normal-Mapped Specular Surfaces

**Ling-Qi Yan**, Miloš Hašan, Wenzel Jakob, Jason Lawrence, Steve Marschner, Ravi Ramamoorthi

ACM Transactions on Graphics 33(4) [SIGGRAPH 2014]

Discrete Stochastic Microfacet Models

Wenzel Jakob, Miloš Hašan, **Ling-Qi Yan**, Jason Lawrence, Ravi Ramamoorthi, Steve Marschner

ACM Transactions on Graphics 33(4) [SIGGRAPH 2014]

EGSR/CGF Adaptive BRDF-Oriented Multiple Importance Sampling of Many Lights

Yifan Liu, Kun Xu, **Ling-Qi Yan**

Computer Graphics Forum 38(4) [EGSR 2019]

Multiple Axis-Aligned Filters for Rendering of Combined Distribution Effects

Lifan Wu, **Ling-Qi Yan**, Alexandr Kuznetsov, Ravi Ramamoorthi

Computer Graphics Forum 36(4) [EGSR 2017]

Accurate Translucent Material Rendering under Spherical Gaussian Lights

**Ling-Qi Yan**, Yahan Zhou, Kun Xu, Rui Wang

Computer Graphics Forum 31(7) [Pacific Graphics 2012]

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## Patents

Accurate Translucent Material Rendering under Spherical Gaussian Lights

Kun Xu and **Ling-Qi Yan**, Chinese patent protection, Document Number: KHP12115241.7