Lingqi Yan

Curriculum Vitae

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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 Digtal, 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

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	*War for the Planet of the Apes*: animal fur appearance model	2016
	Nominee of Oscar best visual effects award	
	Autodesk Fusion 360: pre-computed real-time glints rendering	2015
	Zootopia: 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	Pacific Graphics Program Committee	2020
	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)	

Departmental Services

Graduate Admissions Committee	2019 - 2020
Undergraduate Student Affairs Committee	2019 - 2020
Graduate Admissions Committee	2018 - 2019
Undergraduate Student Affairs Committee	2018 - 2019

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

Publications

SIGGRAPH/ToG

Example-Based Microstructure Rendering with Constant Storage
Beibei Wang, Miloš Hašan, Nicolas Holzschuch, **Ling-Qi Yan**
ACM Transactions on Graphics 39(5) [2019, Presented at SIGGRAPH 2020]

Learning Generative Models for Rendering Specular Microgeometry
Alexandr Kuznetsov, Miloš Hašan, Zexiang Xu, **Ling-Qi Yan**, Bruce Walter, Nima Khademi Kalantari, Steve Marschner, Ravi Ramamoorthi
ACM Transactions on Graphics 38(6) [SIGGRAPH Asia 2019]

GradNet: Unsupervised Deep Screened Poisson Reconstruction for Gradient-Domain Rendering
Jie Guo, Mengtian Li, Quewei Li, Yuting Qiang, Bingyang Hu, Yanwen Guo, **Ling-Qi Yan**
ACM Transactions on Graphics 38(6) [SIGGRAPH Asia 2019]

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 **Foveated Instant Radiosity**

Lili Wang, Runze Li, Xuehuai Shi, **Ling-Qi Yan**, Zhichao Li

IEEE International Symposium on Mixed and Augmented Reality (ISMAR) 2020

A Bayesian Inference Framework for Procedural Material Parameter Estimation

Yu Guo, Miloš Hašan, **Ling-Qi Yan**, Shuang Zhao

Computer Graphics Forum [Pacific Graphics 2020]

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]

Patents

Accurate Translucent Material Rendering under Spherical Gaussian Lights
Kun Xu and **Ling-Qi Yan**, Chinese patent protection, Document Number: KHP12115241.7