

Ioannis Gkioulekas

CONTACT INFORMATION	5000 Forbes Ave, Pittsburgh PA 15213 Robotics Institute Carnegie Mellon University	E-mail: igkioule@cs.cmu.edu Website: https://www.cs.cmu.edu/~igkioule/ Group website: https://imaging.cs.cmu.edu/
RESEARCH	I work broadly in computer graphics and computer vision, but I focus on computational imaging: this is the joint design of optics, electronics, and computation to create imaging systems with unprecedented capabilities. Some examples include: imaging systems that can see around corners or through skin; passive 3D sensing systems with extreme resolution; ultrafast programmable lenses; imaging systems that adapt to their environments. Technical keywords that often show up in my research include: non-line-of-sight imaging, single-photon imaging, LiDAR, SONAR, interferometry, speckle, acousto-optics, physics-based rendering, differentiable rendering, Monte Carlo simulation, probabilistic modeling.	
EDUCATION	<i>PhD, Engineering Sciences</i> Harvard University Advisor: Prof. Todd Zickler	Sep 2009–Aug 2016
	<i>MS, Engineering Sciences</i> Harvard University Advisor: Prof. Todd Zickler	Sep 2009–Mar 2014
	<i>Diploma, Electrical and Computer Engineering</i> National Technical University of Athens Thesis supervisor: Prof. Petros Maragos	Sep 2004–Jul 2009
EMPLOYMENT	<i>Associate Professor</i> Robotics Institute, Carnegie Mellon University	Jul 2023–present
	<i>Assistant Professor</i> Robotics Institute, Carnegie Mellon University	Feb 2017–Jun 2023
	<i>Postdoctoral Fellow</i> Harvard School of Engineering and Applied Sciences Advisor: Prof. Todd Zickler	Sep 2016–Jan 2017
	<i>Graduate Research Assistant</i> Harvard School of Engineering and Applied Sciences Advisor: Prof. Todd Zickler	Sep 2009–Aug 2016
	<i>Undergraduate Research Assistant</i> Computer Vision, Speech Communication and Signal Processing Group, NTUA Supervisor: Prof. Petros Maragos	Sep 2008–Jul 2009
	<i>Undergraduate Research Assistant</i> Intelligent Robotics and Automation Laboratory, NTUA Supervisor: Prof. Costas Tzafestas	Sep 2007–Aug 2008
PUBLICATIONS	See also my Google Scholar (link) and ORCID (link) profiles.	
<i>Pre-prints</i>	[1] Hanyu Chen, Bailey Miller, Ioannis Gkioulekas <i>3D Reconstruction with Fast Dipole Sums</i> arXiv:2405.16788	
	[2] Bailey Miller, Rohan Sawhney, Keenan Crane, Ioannis Gkioulekas <i>Differential Walk on Spheres</i> arXiv:2405.12964	

Journal Publications

- [3] Ioannis Gkioulekas, Steven Gortler, Louis Theran, Todd Zickler
Linear Symmetries of the Unsquared Measurement Variety
arXiv:2007.12649
- [4] Bailey Miller*, Rohan Sawhney*, Keenan Crane[†], Ioannis Gkioulekas[†]
Walkin' Robin: Walk on Stars with Robin Boundary Conditions
ACM Transactions on Graphics, 2024 (best paper award)
- [5] Ioannis Gkioulekas, Steven Gortler, Louis Theran, Todd Zickler
Trilateration using Unlabeled Path or Loop Lengths
Discrete & Computational Geometry, 2023
- [6] Juhyeon Kim, Wojciech Jarosz, Ioannis Gkioulekas, Adithya Pediredla
Doppler Time-of-Flight Rendering
ACM Transactions on Graphics, 2023
- [7] Adithya Pediredla*, Matteo Scopelliti*, Srinivasa Narasimhan, Maysamreza Chamanzar, Ioannis Gkioulekas
Optimized Virtual Optical Waveguides Enhance Light Throughput in Scattering Media
Nature Communications, 2023
- [8] Chen Bar, Ioannis Gkioulekas, Anat Levin
Efficient Monte Carlo simulation of spatiotemporal speckles and their correlations
Optica, 2023
- [9] Rohan Sawhney*, Bailey Miller*, Ioannis Gkioulekas[†], Keenan Crane[†]
Walk on Stars: A Grid-Free Monte Carlo Method for PDEs with Neumann Boundary Conditions
ACM Transactions on Graphics, 2023
- [10] Bailey Miller*, Rohan Sawhney*, Keenan Crane[†], Ioannis Gkioulekas[†]
Boundary Value Caching for Walk on Spheres
ACM Transactions on Graphics, 2023
- [11] Dror Aizik, Ioannis Gkioulekas, Anat Levin
Fluorescent wavefront shaping using incoherent iterative phase conjugation
Optica, 2023
- [12] Guangyan Cai, Kai Yan, Zhao Dhong, Ioannis Gkioulekas, Shuang Zhao
Physics-Based Inverse Rendering using Combined Implicit and Explicit Geometries
Computer Graphics Forum, 2022
- [13] Arjun Teh, Matthew O'Toole, Ioannis Gkioulekas
Adjoint Nonlinear Ray Tracing
ACM Transactions on Graphics, 2022
- [14] Maysamreza Chamanzar, Matteo Scopelliti, Adithya Pediredla, Hengji Huang, Srinivasa Narasimhan, Ioannis Gkioulekas, Mohammad-Reza Alam, Michel Maharbiz
Reply to: The overwhelming role of ballistic photons in ultrasonically guided light through tissue
Nature Communications, 2022
- [15] Byengjoo Ahn, Ioannis Gkioulekas, Aswin Sankaranarayanan
Kaleidoscopic Structured Light
ACM Transactions on Graphics, 2021
- [16] Marina Alterman, Chen Bar, Ioannis Gkioulekas, Anat Levin
Imaging with Local Speckle Intensity Correlations: Theory and Practice
ACM Transactions on Graphics, 2021
- [17] Matteo Scopelliti, Hengji Huang, Adithya Pediredla, Srinivasa Narasimhan, Ioannis Gkioulekas, Maysamreza Chamanzar
Overcoming the Tradeoff Between Confinement and Focal Distance Using Virtual Ultrasonic Optical

Waveguides
Optics Express, 2020

- [18] Adithya Pediredla, Yasin K. Chalmiani, Matteo Scopelliti, Maysamreza Chamanzar, Srinivasa Narasimhan, Ioannis Gkioulekas
Path Tracing Estimators for Refractive Radiative Transfer
ACM Transactions on Graphics, 2020
- [19] Chen Bar, Ioannis Gkioulekas, Anat Levin
Rendering Near-Field Speckle Statistics in Scattering Media
ACM Transactions on Graphics, 2020
- [20] Alankar Kotwal, Anat Levin, Ioannis Gkioulekas
Interferometric Transmission Probing with Coded Mutual Intensity
ACM Transactions on Graphics, 2020
- [21] Fujun Luan, Shuang Zhao, Kavita Bala, Ioannis Gkioulekas
Langevin Monte Carlo Rendering with Gradient-based Adaptation
ACM Transactions on Graphics, 2020
- [22] Cheng Zhang, Bailey Miller, Kai Yan, Ioannis Gkioulekas, Shuang Zhao
Path-Space Differentiable Rendering
ACM Transactions on Graphics, 2020
- [23] Bei Xiao, Shuang Zhao, Ioannis Gkioulekas, Wenyan Bi, Kavita Bala
Effect of Geometric Sharpness on Translucent Material Perception
Journal of Vision, 2020
- [24] Cheng Zhang, Lifan Wu, Changxi Zheng, Ioannis Gkioulekas, Ravi Ramamoorthi, Shuang Zhao
A Differential Theory of Radiative Transfer
ACM Transactions on Graphics, 2019
- [25] Adithya Pediredla, Ashok Veeraraghavan, Ioannis Gkioulekas
Ellipsoidal Path Connections for Time-Gated Rendering
ACM Transactions on Graphics, 2019
- [26] Chen Bar, Marina Alterman, Ioannis Gkioulekas, Anat Levin
A Monte Carlo Framework for Rendering Speckle Statistics in Scattering Media
ACM Transactions on Graphics, 2019
- [27] Ioannis Gkioulekas, Anat Levin, Frédo Durand, Todd Zickler
Micron-scale Light Transport Decomposition Using Interferometry
ACM Transactions on Graphics, 2015
- [28] Bei Xiao, Bruce Walter, Ioannis Gkioulekas, Todd Zickler, Edward Adelson, Kavita Bala
Looking Against the Light: How Perception of Translucency Depends on Lighting Direction
Journal of Vision, 2014
- [29] Ioannis Gkioulekas, Shuang Zhao, Kavita Bala, Todd Zickler, Anat Levin
Inverse Volume Rendering with Material Dictionaries
ACM Transactions on Graphics, 2013
- [30] Ioannis Gkioulekas, Bei Xiao, Shuang Zhao, Edward Adelson, Todd Zickler, Kavita Bala
Understanding the Role of Phase Function in Translucent Appearance
ACM Transactions on Graphics, 2013
- [31] Sanjeev Koppal, Ioannis Gkioulekas, Travis Young, Hyunsung Park, Kenneth Crozier, Geoffrey Barrows, Todd Zickler
Toward Wide-Angle Microvision Sensors
IEEE Transactions on Pattern Analysis and Machine Intelligence, 2013

- [32] Arjun Teh, Ioannis Gkioulekas, Matthew O'Toole
Aperture-aware lens design
SIGGRAPH 2024
- [33] Tanli Su, Ioannis Gkioulekas
Path sampling methods for differentiable rendering
Eurographics Symposium on Rendering, 2024
- [34] Bailey Miller, Hanyu Chen, Alice Lai, Ioannis Gkioulekas
Objects as volumes: A stochastic geometry view of opaque solids
IEEE/CVF International Conference on Computer Vision, 2024
(oral presentation, best student paper honorable mention award)
- [35] Adithya Pediredla, Srinivasa Narasimhan, Maysamreza Chamanzar, Ioannis Gkioulekas
Megahertz light steering without moving parts
IEEE/CVF International Conference on Computer Vision, 2023
- [36] Alankar Kotwal, Anat Levin, Ioannis Gkioulekas
Swept-Angle Synthetic Wavelength Interferometry
IEEE/CVF International Conference on Computer Vision, 2023
- [37] Alankar Kotwal, Anat Levin, Ioannis Gkioulekas
Passive Time-of-Flight Imaging with Sunlight Interferometry
IEEE/CVF International Conference on Computer Vision, 2023 (highlight)
- [38] Byengjoo Ahn, Michael De Zeeuw, Ioannis Gkioulekas, Aswin Sankaranarayanan
Neural Kaleidoscopic Space Sculpting
IEEE/CVF International Conference on Computer Vision, 2023
- [39] Mohamad Qadri, Michael Kaess, Ioannis Gkioulekas
Neural Implicit Surface Reconstruction using Imaging Sonar
IEEE International Conference on Robotics and Automation, 2023
- [40] Ryan Po, Adithya Pediredla, Ioannis Gkioulekas
Adaptive Gating for Single-Photon 3D Imaging
IEEE/CVF Conference on Computer Vision and Pattern Recognition, 2022 (oral presentation)
- [41] Shumian Xin, Neal Wadhwa, Tianfan Xue, Jon Barron, Pratul Srinivasan, Jiawen Chen, Ioannis Gkioulekas, Rahul Garg
Defocus Map Estimation and Deblurring From a Single Dual-Pixel Image
IEEE/CVF International Conference on Computer Vision, 2021 (oral presentation)
- [42] Chen Bar, Marina Alterman, Ioannis Gkioulekas, Anat Levin
Single Scattering Modeling of Speckle Correlation
IEEE International Conference on Computational Photography, 2021
- [43] Eric Westman, Ioannis Gkioulekas, Michael Kaess
A Theory of Fermat Paths for 3D Imaging Sonar Reconstruction
IEEE International Conference on Intelligent Robots and Systems, 2020
- [44] Kfir Shem-Tov*, Sai Praveen Bangaru*, Anat Levin, Ioannis Gkioulekas
Towards Reflectometry from Interreflections
IEEE International Conference on Computational Photography, 2020
- [45] Chengqian Che, Fujun Luan, Shuang Zhao, Kavita Bala, Ioannis Gkioulekas
Towards Learning-based Inverse Subsurface Scattering
IEEE International Conference on Computational Photography, 2020
- [46] Eric Westman, Ioannis Gkioulekas, Michael Kaess
A Volumetric Albedo Framework for 3D Imaging Sonar Reconstruction
IEEE International Conference on Robotics and Automation, 2020

- [47] Alankar Kowtal, Avilash Cramer, Dufan Wu, Kai Yang, Wolfgang Krull, Ioannis Gkioulekas, Rajiv Gupta
Signal Sensing and Reconstruction Paradigms for a Novel Multi-Source Static Computed Tomography System
IEEE International Conference on Acoustics, Speech and Signal Processing, 2020
- [48] Byengjoo Ahn, Akshat Dave, Ashok Veeraraghavan, Ioannis Gkioulekas, Aswin Sankaranarayanan
Convolutional Approximations to the General Non-Line-of-Sight Imaging Operator
IEEE/CVF International Conference on Computer Vision, 2019 (oral presentation)
- [49] Chia-Yin Tsai, Aswin Sankaranarayanan, Ioannis Gkioulekas
Beyond Volumetric Albedo—A Surface Optimization Framework for Non-Line-of-Sight Imaging
IEEE/CVF Conference on Computer Vision and Pattern Recognition, 2019
- [50] Shumian Xin, Sotirios Nousias, Kiriakos Kutulakos, Aswin Sankaranarayanan, Srinivasa Narasimhan, Ioannis Gkioulekas
A Theory of Fermat Paths for Non-Line-of-Sight Shape Reconstruction
IEEE/CVF Conference on Computer Vision and Pattern Recognition, 2019
(oral presentation, best paper award)
- [51] Ankit Raghuram*, Adithya Pediredla*, Srinivasa Narasimhan, Ioannis Gkioulekas, Ashok Veeraraghavan
STORM: Super-resolving Transients by Over-sampled Measurements
IEEE International Conference on Computational Photography, 2019
- [52] Ioannis Gkioulekas, Anat Levin, Todd Zickler
An Evaluation of Computational Imaging Techniques for Heterogeneous Inverse Scattering
European Conference on Computer Vision, 2016 (spotlight presentation)
- [53] Ioannis Gkioulekas, Bruce Walter, Edward Adelson, Kavita Bala, Todd Zickler
On the Appearance of Translucent Edges
IEEE/CVF Conference on Computer Vision and Pattern Recognition, 2015
- [54] Ioannis Gkioulekas, Todd Zickler
Dimensionality Reduction Using the Sparse Linear Model
Advances in Neural Information Processing Systems, 2011
- [55] Sanjeev Koppal, Ioannis Gkioulekas, Todd Zickler and Geoffrey Barrows
Wide-angle Micro sensors for Vision on a Tight Budget
IEEE Conference on Computer Vision and Pattern Recognition, 2011 (oral presentation)
- [56] Ioannis Gkioulekas, Georgios Evangelopoulos, Petros Maragos
Spatial Bayesian Surprise for Image Saliency and Quality Assessment
International Conference on Image Processing, 2010
- Refereed Abstract and Workshop Publications [57] Chen Bar, Ioannis Gkioulekas, Anat Levin
Efficient Monte Carlo simulation of speckles with physically-correct spatio-temporal statistics
Adaptive Optics and Wavefront Control for Biological Systems, 2024
- [58] Dakshit Agrawal, Jiajie Xu, Siva Karthik Mustikovela, Ioannis Gkioulekas, Ashish Shrivastava, Yuning Chai
NOVA: NOvel View Augmentation for Neural Composition of Dynamic Objects
IEEE/CVF International Conference on Computer Vision Workshops, 2023
- [59] Dror Aizik, Ioannis Gkioulekas, Anat Levin
Rapid fluorescent wavefront shaping using incoherent power iterations
Adaptive Optics and Wavefront Control for Biological Systems, 2023
- [60] Dror Aizik, Ioannis Gkioulekas, Anat Levin
Fluorescent Wavefront Shaping Using Incoherent Iterative Phase Conjugation

Frontiers in Optics and Laser Science, 2022

- [61] Marina Alterman, Chen Bar, Ioannis Gkioulekas, Anat Levin
Imaging Inside Tissue Using Speckle Statistics
Optical Tomography and Spectroscopy, 2022
- [62] Matteo Scopelliti, Hengji Huang, Adithya Pediredla, Srinivasa Narasimhan, Ioannis Gkioulekas, Maysamreza Chamanzar
All photon analysis of ultrasonically sculpted virtual optical waveguides using a custom-designed physics-based renderer
Imaging and Sensing, 2021
- [63] Matteo Scopelliti, Hengji Huang, Adithya Pediredla, Srinivasa Narasimhan, Ioannis Gkioulekas, Maysamreza Chamanzar
Extending the focal distance without sacrificing the spatial resolution using virtual ultrasonic optical waveguides
Imaging and Sensing, 2021
- [64] Chen Bar, Marina Alterman, Ioannis Gkioulekas, Anat Levin
A single scattering analysis of speckle correlation
Computational Optical Sensing and Imaging, 2021
- [65] Marina Alterman, Chen Bar, Ioannis Gkioulekas, Anat Levin
Near-field Imaging Inside Scattering Layers
Computational Optical Sensing and Imaging, 2021
- [66] Chen Bar, Marina Alterman, Ioannis Gkioulekas, Anat Levin
Monte-Carlo Simulation of the Memory Effect in Random Media Beyond the Diffusion Limit
SPIE/OSA European Conference on Biomedical Optics, 2019
- [67] Chen Bar, Marina Alterman, Ioannis Gkioulekas, Anat Levin
Exploiting Speckle Statistics in Random Media Beyond the Diffusion Limit
OSA Computational Optical Sensing and Imaging, 2019
- [68] Bei Xiao, Shuang Zhao, Ioannis Gkioulekas, Wenyan Bi, Kavita Bala
Does Geometric Sharpness Affect Perception of Translucent Material?
Vision Science Society Annual Meeting, 2018
- [69] Ioannis Gkioulekas, Kavita Bala, Frédo Durand, Anat Levin, Shuang Zhao, Todd Zickler
Computational Imaging for Inverse Scattering
Electronic Imaging, 2016
- [70] Bei Xiao, Ioannis Gkioulekas, Asher Dunn, Shuang Zhao, Todd Zickler, Edward Adelson, Kavita Bala
Effects of Shape and Color on the Perception of Translucency
Vision Science Society Annual Meeting, 2012

Theses

- [71] Ioannis Gkioulekas
A Framework for Inverse Scattering
Doctoral Dissertation, School of Engineering and Applied Sciences, Harvard University, 2016
- [72] Ioannis Gkioulekas
Computational Modeling of Visual Attention
Diploma Thesis, School of Electrical and Computer Engineering, National Technical University of Athens, 2009 (in Greek)

ADVISING

Advisees are listed in reverse graduation order.

Postdoctoral

Adithya Pediredla (Robotics Institute)

Mar 2019–Jan 2023

Doctoral

Sreekar Ranganathan (Electrical and Computer Engineering)

Sep 2023–present

	Tanli Su (Computer Science Department)	Sep 2022–present
	Bailey Miller (Computer Science Department)	Sep 2020–present
	Bakari Hassan (Electrical and Computer Engineering)	Sep 2019–present
	Arjun Teh (Computer Science Department)	Sep 2018–present
	Byeongjoo Ahn (Electrical and Computer Engineering) Thesis: <i>Full-surround 3D Reconstruction using Kaleidoscopes</i>	Mar 2019–Dec 2023
	Alankar Kotwal (Robotics Institute) Thesis: <i>Computational Interferometric Imaging</i>	Sep 2017–Mar 2023
	Shumian Xin (Robotics Institute) Thesis: <i>3D Reconstruction using Differential Imaging</i>	Sep 2017–Jan 2023
	Chengqian Che (Robotics Institute)	Sep 2017–Aug 2022
<i>Master</i>	Neham Jain (Master of Science in Robotics)	Sep 2023–present
	Benran Hu (Master of Science in Computer Science)	Sep 2023–present
	Yuan Meng (Master of Engineering) Thesis: <i>Markov Chain Monte Carlo Reflectometry</i>	Jan 2023–May 2024
	George Ralph (Master of Science in Computer Science) Thesis: <i>Inverse Radiosity for Non-Line-of-Sight Imaging</i>	Jan 2022–Aug 2023
	Oscar Dadfar (Master of Science in Computer Science) Thesis: <i>An Angular Parameterization for Manifold Connections</i>	Sep 2021–May 2022
	Shirsendu Halder (Master of Science in Robotics) Thesis: <i>Robust 3D Reconstruction in Noisy Environments</i>	Sep 2019–Sep 2021
	Sai Praveen Bangaru (Master of Science in Computer Science) Thesis: <i>Towards Shape Reconstruction through Differentiable Rendering</i>	Jan 2018–Aug 2019
<i>Master of Science in Computer Vision</i>	Students in this program work with a faculty mentor and an industry partner on a capstone project.	
	Tianwen Fu (Master of Science in Computer Vision)	Jan 2024–May 2024
	Simon Seo (Master of Science in Computer Vision)	Jan 2023–Dec 2023
	Will Yu (Master of Science in Computer Vision)	Jan 2023–Dec 2023
	Dakshit Agrawal (Master of Science in Computer Vision)	Sep 2022–May 2022
	Jiajie Xu (Master of Science in Computer Vision)	Sep 2022–May 2022
	Cheng-Hsin Wu (Master of Science in Computer Vision)	Jan 2021–May 2022
	Ningyuan Zheng (Master of Science in Computer Vision)	Jan 2021–May 2022
	Akankshya Kar (Master of Science in Computer Vision)	Jan 2020–Dec 2020
	Varun Jain (Master of Science in Computer Vision)	Jan 2020–Dec 2020
	Yuan Dong (Master of Science in Computer Vision)	Jan 2019–Dec 2019
	Congrui Hetang (Master of Science in Computer Vision)	Jan 2019–Dec 2019
<i>Undergraduate</i>	Alexandra Mishkin (Mathematics)	May 2024–present
	Kevin You (Computer Science and Mathematics)	Sep 2023–present
	Hanyu Chen (Computer Science) Thesis: <i>3D Reconstruction with Fast Dipole Sums</i>	Aug 2022–May 2024

Robin Zheng (Computer Science)	Jan 2023–May 2023
Po Ryan (Computer Science)	Jun 2020–Aug 2022
Andre Nascimento (Computer Science)	Aug 2021–May 2022
Alice Lai (Electrical and Computer Engineering)	Jan 2021–May 2022
Max Slater (Computer Science)	Aug 2021–Dec 2021
Akshath Jain (Computer Science)	Jan 2021–May 2021
Vaishnavi Mantha (Computer Science)	Jun 2020–Dec 2020
Jiatian Sun (Computer Science)	Apr 2018–Jul 2020
Jessica Cao (Computer Science)	Sep 2019–Dec 2019
Jan Orłowski (Computer Science)	Sep 2019–Dec 2019
Hang Yin (Computer Science)	Mar 2019–Aug 2019
Alan Jaffe (Computer Science)	Jan 2018–Aug 2018

INVITED TALKS

Interferometric computational imaging, CVPR Area Chair Workshop, 2023

Interferometric computational imaging, SCIEN Colloquium Series, Stanford, 2023

Imaging with multi-bounce light, Asilomar Conference on Signals, Systems, and Computers, 2021

Towards imaging with multi-bounce light, Samsung Research, 2020

Towards computational interferometry, ICERM Workshop on Computational Imaging, Brown University, 2019

Optical high-resolution imaging deep inside the body, BIRS Computational Light Transport Workshop, Banff International Research Station, 2019

Bridging the gap between physical optics propagation and physically-based rendering, BIRS Computational Light Transport Workshop, Banff International Research Station, 2019

Computational Photo-Scatterography, NSF Expeditions in Computing PI Meeting, 2018

Towards imaging systems that make sense of multi-path light, Department of Electrical and Computer Engineering, Carnegie Mellon University, 2018

Towards imaging systems that make sense of multi-path light, National Robotics Engineering Center, Carnegie Mellon University, 2018

Computational Imaging for Inverse Scattering, SPIE BIOS, Photonics West, 2017

Making Sense of Multi-path Light, Department of Computer Science, University of Toronto, 2016

Making Sense of Multi-path Light, Robotics Institute, Carnegie Mellon University, 2016

An Evaluation of Computational Imaging Techniques for Heterogeneous Inverse Scattering, ECCV, 2016

An Evaluation of Computational Imaging Techniques for Heterogeneous Inverse Scattering, Graphics Seminar, MIT, 2016

Computational Imaging for Inverse Scattering, IS&T Electronic Imaging, 2016

Computational Imaging for Inverse Scattering, New England Computer Vision Workshop, 2015

Computational Imaging for Inverse Scattering, Information and Systems Seminar, Harvard University, 2016

Computational Imaging for Inverse Scattering, Graphics Seminar, Cornell University, 2015

Computational Imaging for Inverse Scattering, International Conference on Computational Photography, 2015

Micron-scale Light Transport Decomposition Using Interferometry, SIGGRAPH, 2015
Micron-scale Light Transport Decomposition Using Interferometry, Camera Culture Seminar, Media Lab, MIT, 2015
Micron-scale Light Transport Decomposition Using Interferometry, Graphics Seminar, MIT, 2015
Understanding Translucency: Perception, Acquisition, Computer Vision, Graphics Seminar, University of Toronto, 2014
Inverse Volume Rendering with Material Dictionaries, SIGGRAPH Asia, 2013
Inverse Volume Rendering with Material Dictionaries, Graphics Seminar, MIT, 2013
Understanding the Role of Phase Function in Translucent Appearance, SIGGRAPH, 2013
Understanding the Role of Phase Function in Translucent Appearance, Graphics Seminar, University of California Berkeley, 2013
Understanding the Role of Phase Function in Translucent Appearance, Graphics Seminar, MIT, 2012

FUNDING

Rapid Assessment of Wildland Fire Position and Plume Dynamics using Coordinated Multi-UAS Sensing, USDA NIFA, 2023–2025
Student Travel Support for the International Conference on Computational Photography (ICCP) 2022, NSF RI, 2022–2023
Workshop on Inclusive Computational Photography, ExploreCSR, 2021–2022
Gift from Amazon Web Services, 2021
Towards Computational Interferometric Imaging, NSF CAREER, 2021–2026
Computational Imaging with Speckle Correlations for Material Analysis, NSF CHS Small, 2021–2023
Towards Imaging with Multi-Bounce Light, Sloan Research Fellowship, 2020–2022
Reconstructing Model Dimensionality from Physical Parts in Noisy Machining Environments, Lockheed Martin Corporation, 2019–2022
Physics and Learning Integration Using Differentiable Rendering, NSF CHS Medium, 2019–2022
Gift from Amazon Web Services, 2019
Gift from Berkman Faculty Development Fund, 2018
Computational Photo-Scatterography: Unraveling Scattered Photons for Bio-imaging, NSF Expeditions, 2018–2023
Active Illumination and Imaging across Millisecond to Picosecond Time Scales for General LOS/NLOS Scene Understanding, DARPA REVEAL Phase 2, 2018–2020
Obtaining Multipath & Non-line-of-sight Information by Sensing Coherence & Intensity with Emerging Novel Techniques, DARPA REVEAL Phase 2, 2018–2020
Obtaining Multipath & Non-line-of-sight Information by Sensing Coherence & Intensity with Emerging Novel Techniques, DARPA REVEAL Phase 1, 2017–2018

AWARDS

Best Paper Award, SIGGRAPH 2024
Best Student Paper Honorable Mention Award, CVPR 2024
NSF CAREER Award, 2021
Sloan Research Fellowship, 2020
Best Paper Award, CVPR 2019

Outstanding Reviewer Award, CVPR 2022
Outstanding Reviewer Award, ICCV 2021
Outstanding Reviewer Award, CVPR 2021
Outstanding Reviewer Award with Distinction, CVPR 2019
Outstanding Reviewer Award, BMVC 2017
Outstanding Reviewer Award, CVPR 2017
Outstanding Reviewer Award, ECCV 2016
Outstanding Reviewer Award, CVPR 2016
Outstanding Reviewer Award, ICCV 2015
Harvard Certificate of Distinction in Teaching, Fall 2014
Harvard Certificate of Distinction in Teaching, Fall 2013
John A. and Elizabeth S. Armstrong Fellowship, 2010
Harvard School of Engineering and Applied Sciences Graduate Fellowship, 2009–2011
Greek State Scholarships' Foundation Award for Excellence in Undergraduate Studies, 2008–2009
KARY Award, awarded to top students of the ECE Department at NTUA, 2008–2009
Agricultural Bank of Greece Award for Excellence in Undergraduate Studies, 2005–2009
President of the Hellenic Republic Award for Excellence in High School studies, 2004

PROFESSIONAL
ACTIVITIES

Session Chair, SIGGRAPH 2024
Technical Papers Committee, SIGGRAPH 2024
Area Chair, CVPR 2024
Awards Committee, ICCP 2024
Program Committee, ICCP 2024
Associate Editor, International Journal of Computer Vision (2020–2023)
Technical Papers Committee, SIGGRAPH Asia 2023
Program Committee, ICCP 2023
Area Chair, CVPR 2023
Steering Committee, ICCP, 2022–present
Program Chair, ICCP 2022
Technical Papers Committee, SIGGRAPH 2022
Program Committee, EGSR 2022
Technical Papers Committee, SIGGRAPH 2021
Session Chair, SIGGRAPH 2021
Program Committee, Eurographics Symposium on Rendering (EGSR) 2021
Session Chair, EGSR 2021
Program Committee, ICCP 2021
Broadcast Chair, ICCP 2021

Program Committee, Pacific Graphics 2021
Session Chair, Pacific Graphics 2021
Program Committee, ICCP 2020
Finance Chair, ICCP 2020
Session Chair, ICCP 2020
Program Committee, Pacific Graphics 2020
Program Committee, ICCP 2019
Program Committee, Pacific Graphics 2019
Program Committee, ICCP 2018
Chair, Workshop on Computational Cameras and Displays (CCD) 2019 (held in conjunction with CVPR)
Local Arrangements Chair, ICCP 2018
Chair, Workshop on Computational Cameras and Displays (CCD) 2018 (held in conjunction with CVPR)
Session Chair, ICCP 2018
Reviewer, Natural Sciences and Engineering Research Council of Canada, Computer Science 2024
Reviewer, National Science Foundation, CISE RI, 2024
Reviewer, Natural Sciences and Engineering Research Council of Canada, Computer Science 2019
Panelist, National Science Foundation, CISE RI 2022
Panelist, National Science Foundation, CISE HCC 2022
Panelist, National Science Foundation, CISE RI 2019
Panelist, National Science Foundation, CISE CHS 2019
Panelist, National Science Foundation, CISE CHS 2018
Reviewer, IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) (2013, 2015–2022), IEEE/CVF International Conference on Computer Vision (ICCV) (2013–2023), European Conference on Computer Vision (ECCV) (2016–2024), British Machine Vision Conference (BMVC) (2017), Asian Conference on Computer Vision (ACCV) (2016), IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI) (2013–2022), IEEE Transactions on Computational Imaging (TCI) (2018–2021), International Journal of Computer Vision (2012–2022), ACM SIGGRAPH (2014, 2016–2023), ACM SIGGRAPH Asia (2018–2022), ACM Transactions on Graphics (TOG) (2014–2024), Eurographics Symposium on Rendering (EGSR) (2018–2022), Computers & Graphics (2021), High-Performance Graphics (2018), Pacific Graphics (2018–2021), Journal of Optical Society of America (2017), Optics Express (2020)
Member, Institute of Electrical and Electronics Engineers (IEEE) (2007–present)
Member, Association for Computing Machinery (ACM) (2009–present)
Member, Technical Chamber of Greece (2010–2015)
Treasurer, IEEE NTUA Student Branch (2008–2009)

UNIVERSITY SERVICE	<i>MSCV Admissions Committee</i> , Robotics Institute <i>Faculty Hiring Committee</i> , Robotics Institute <i>Ph.D. Admissions Committee</i> , Robotics Institute <i>MSCV Admissions Committee (reviewer)</i> , Robotics Institute	2022–present 2021–present 2018–2021 2017–present
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TEACHING

Computational Interferometric Imaging
Organizer, SIGGRAPH 2023 course

Physics-based Rendering and its Applications in Computational Photography and Imaging
Organizer, CVPR 2023 tutorial

Physics-based Rendering in the Service of Computational Imaging
Organizer, ICVGIP 2022 tutorial

Physics-based Differentiable Rendering
Organizer, CVPR 2021 tutorial

15-468, 15-668, 15-868 Physics-based Rendering
Instructor, Carnegie Mellon University, Spring 2021–present

15-463, 15-663, 15-862 Computational Photography
Instructor, Carnegie Mellon University, Fall 2017–present

16-621, 16-622 MSCV Capstone I & II
Instructor, Carnegie Mellon University, Fall 2022–Spring 2024

Computer Vision
Instructor, Carnegie Mellon University Executive Education, 2021–present

16-385 Computer Vision
Instructor, Carnegie Mellon University, Spring 2018–2020

CS283 Computer Vision
Teaching Fellow, Harvard University, Fall 2010, 2012–2015

Programming Techniques
Lab Assistant, National Technical University of Athens, Spring 2006

Introduction to Programming
Lab Assistant, National Technical University of Athens, Fall 2005, Fall 2006

OUTREACH

Introduction to Digital Photography
Instructor, Gelfand Weekend Series, October 2021, July 2022, September 2022, July 2023, October 2023, March 2024, July 2024

From Photons to Photos
Co-organizer, Gelfand Summer Workshop, July 2019

Camera and Displays
Co-instructor, Gelfand Weekend Series, April 2019

OTHER INFORMATION

Citizenship: Greek.
Languages: Greek (native), English (fluent), German (intermediate)