Ioannis Gkioulekas

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Robotics Institute, Carnegie Mellon University
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Pittsburgh, PA 15213

igkioule@cs.cmu.edu
https://www.cs.cmu.edu/~igkioule/
https://imaging.cs.cmu.edu/

Research Interests

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

Harvard University September 2009 - August 2016
PhD in Engineering Sciences
Advisor: Prof. Todd Zickler

Harvard University September 2009 - March 2014
Master in Engineering Sciences
Advisor: Prof. Todd Zickler

National Technical University of Athens September 2004 - July 2009
Diploma in Electrical and Computer Engineering
Thesis supervisor: Prof. Petros Maragos

Professional Experience

Associate Professor July 2023 - present
Robotics Institute, Carnegie Mellon University

Assistant Professor February 2017 - June 2023
Robotics Institute, Carnegie Mellon University

Postdoctoral Fellow September 2016 - January 2017
Harvard School of Engineering and Applied Sciences
Advisor: Prof. Todd Zickler

Graduate Research Assistant September 2009 - August 2016
Harvard School of Engineering and Applied Sciences
Advisor: Prof. Todd Zickler

Undergraduate Research Assistant September 2008- July 2009
Computer Vision, Speech Communication and Signal Processing Group, NTUA
Supervisor: Prof. Petros Maragos

Undergraduate Research Assistant September 2007 - August 2008
Intelligent Robotics and Automation Laboratory, NTUA
Supervisor: Prof. Costas Tzafestas

Publications

Pre-prints

3D Reconstruction with Fast Dipole Sums
arXiv:2405.16788
Hanyu Chen, Bailey Miller, **Ioannis Gkioulekas**

Differential Walk on Spheres
arXiv:2405.12964
Bailey Miller, Rohan Sawhney, Keenan Crane, **Ioannis Gkioulekas**

Linear Symmetries of the Unsquared Measurement Variety
arXiv:2007.12649
Ioannis Gkioulekas, Steven Gortler, Louis Theran, Todd Zickler

Journal Publications

Walkin' Robin: Walk on Stars with Robin Boundary Conditions
ACM Transactions on Graphics, 2024 (**best paper award**)
Bailey Miller*, Rohan Sawhney*, Keenan Crane†, **Ioannis Gkioulekas**†

Trilateration using Unlabeled Path or Loop Lengths
Discrete & Computational Geometry, 2023
Ioannis Gkioulekas, Steven Gortler, Louis Theran, Todd Zickler

Doppler Time-of-Flight Rendering
ACM Transactions on Graphics, 2023
Juhyeon Kim, Wojciech Jarosz, **Ioannis Gkioulekas**, Adithya Pediredla

Optimized Virtual Optical Waveguides Enhance Light Throughput in Scattering Media
Nature Communications, 2023
Adithya Pediredla*, Matteo Scopelliti*, Srinivasa Narasimhan, Maysamreza Chamanzar, **Ioannis Gkioulekas**

Efficient Monte Carlo simulation of spatiotemporal speckles and their correlations
Optica, 2023
Chen Bar, **Ioannis Gkioulekas**, Anat Levin

Walk on Stars: A Grid-Free Monte Carlo Method for PDEs with Neumann Boundary Conditions
ACM Transactions on Graphics, 2023
Rohan Sawhney*, Bailey Miller*, **Ioannis Gkioulekas**†, Keenan Crane†

Boundary Value Caching for Walk on Spheres
ACM Transactions on Graphics, 2023
Bailey Miller*, Rohan Sawhney*, Keenan Crane†, **Ioannis Gkioulekas**†

Fluorescent wavefront shaping using incoherent iterative phase conjugation
Optica, 2023
Dror Aizik, **Ioannis Gkioulekas**, Anat Levin

Physics-Based Inverse Rendering using Combined Implicit and Explicit Geometries
Computer Graphics Forum, 2022
GGuangyan Cai, Kai Yan, Zhao Dhong, **Ioannis Gkioulekas**, Shuang Zhao

Adjoint Nonlinear Ray Tracing
ACM Transactions on Graphics, 2022

Arjun Teh, Matthew O'Toole, **Ioannis Gkioulekas**

Reply to: The overwhelming role of ballistic photons in ultrasonically guided light through tissue
Nature Communications, 2022
Maysamreza Chamanzar, Matteo Scopelliti, Adithya Pediredla, Hengji Huang, Srinivasa Narasimhan, **Ioannis Gkioulekas**, Mohammad-Reza Alam, Michel Maharbiz

Kaleidoscopic Structured Light
ACM Transactions on Graphics, 2021
Byengjoo Ahn, **Ioannis Gkioulekas**, Aswin Sankaranarayanan

Imaging with Local Speckle Intensity Correlations: Theory and Practice
ACM Transactions on Graphics, 2021
Marina Alterman, Chen Bar, **Ioannis Gkioulekas**, Anat Levin

Overcoming the Tradeoff Between Confinement and Focal Distance Using Virtual Ultrasonic Optical Waveguides
Optics Express, 2020
Matteo Scopelliti, Hengji Huang, Adithya Pediredla, Srinivasa Narasimhan, **Ioannis Gkioulekas**, Maysamreza Chamanzar

Path Tracing Estimators for Refractive Radiative Transfer
ACM Transactions on Graphics, 2020
Adithya Pediredla, Yasin K. Chalmiani, Matteo Scopelliti, Maysamreza Chamanzar, Srinivasa Narasimhan, **Ioannis Gkioulekas**

Rendering Near-Field Speckle Statistics in Scattering Media
ACM Transactions on Graphics, 2020
Chen Bar, **Ioannis Gkioulekas**, Anat Levin

Interferometric Transmission Probing with Coded Mutual Intensity
ACM Transactions on Graphics, 2020
Alankar Kotwal, Anat Levin, **Ioannis Gkioulekas**

Langevin Monte Carlo Rendering with Gradient-based Adaptation
ACM Transactions on Graphics, 2020
Fujun Luan, Shuang Zhao, Kavita Bala, **Ioannis Gkioulekas**

Path-Space Differentiable Rendering
ACM Transactions on Graphics, 2020
Cheng Zhang, Bailey Miller, Kai Yan, **Ioannis Gkioulekas**, Shuang Zhao

Effect of Geometric Sharpness on Translucent Material Perception
Journal of Vision, 2020
Bei Xiao, Shuang Zhao, **Ioannis Gkioulekas**, Wenyan Bi, Kavita Bala

A Differential Theory of Radiative Transfer
ACM Transactions on Graphics, 2019
Cheng Zhang, Lifan Wu, Changxi Zheng, **Ioannis Gkioulekas**, Ravi Ramamoorthi, Shuang Zhao

Ellipsoidal Path Connections for Time-Gated Rendering
ACM Transactions on Graphics, 2019

Adithya Pediredla, Ashok Veeraraghavan, **Ioannis Gkioulekas**

A Monte Carlo Framework for Rendering Speckle Statistics in Scattering Media
ACM Transactions on Graphics, 2019
Chen Bar, Marina Alterman, **Ioannis Gkioulekas**, Anat Levin

Micron-scale Light Transport Decomposition Using Interferometry
ACM Transactions on Graphics, 2015
Ioannis Gkioulekas, Anat Levin, Frédo Durand, Todd Zickler

Looking Against the Light: How Perception of Translucency Depends on Lighting Direction
Journal of Vision, 2014
Bei Xiao, Bruce Walter, **Ioannis Gkioulekas**, Todd Zickler, Edward Adelson, Kavita Bala

Inverse Volume Rendering with Material Dictionaries
ACM Transactions on Graphics, 2013
Ioannis Gkioulekas, Shuang Zhao, Kavita Bala, Todd Zickler, Anat Levin

Understanding the Role of Phase Function in Translucent Appearance
ACM Transactions on Graphics, 2013
Ioannis Gkioulekas, Bei Xiao, Shuang Zhao, Edward Adelson, Todd Zickler, Kavita Bala

Toward Wide-Angle Microvision Sensors
IEEE Transactions on Pattern Analysis and Machine Intelligence, 2013
Sanjeev Koppal, **Ioannis Gkioulekas**, Travis Young, Hyunsung Park, Kenneth Crozier, Geoffrey Barrows, Todd Zickler

Refereed Conference Publications

Aperture-aware lens design
SIGGRAPH 2024
Arjun Teh, **Ioannis Gkioulekas**, Matthew O'Toole

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**)
Bailey Miller, Hanyu Chen, Alice Lai, **Ioannis Gkioulekas**

Megahertz light steering without moving parts
IEEE/CVF International Conference on Computer Vision, 2023
Adithya Pediredla, Srinivasa Narasimhan, Maysamreza Chamanzar, **Ioannis Gkioulekas**

Swept-Angle Synthetic Wavelength Interferometry
IEEE/CVF International Conference on Computer Vision, 2023
Alankar Kotwal, Anat Levin, **Ioannis Gkioulekas**

Passive Time-of-Flight Imaging with Sunlight Interferometry
IEEE/CVF International Conference on Computer Vision, 2023 (highlight)
Alankar Kotwal, Anat Levin, **Ioannis Gkioulekas**

Neural Kaleidoscopic Space Sculpting

IEEE/CVF International Conference on Computer Vision, 2023
Byengjoo Ahn, Michael De Zeeuw, **Ioannis Gkioulekas**, Aswin Sankaranarayanan

Neural Implicit Surface Reconstruction using Imaging Sonar
IEEE International Conference on Robotics and Automation (ICRA), 2023
Mohamad Qadri, Michael Kaess, **Ioannis Gkioulekas**

Adaptive Gating for Single-Photon 3D Imaging
IEEE/CVF Conference on Computer Vision and Pattern Recognition, 2022 (oral presentation)
Ryan Po, Adithya Pediredla, **Ioannis Gkioulekas**

Defocus Map Estimation and Deblurring From a Single Dual-Pixel Image
IEEE/CVF International Conference on Computer Vision, 2021 (oral presentation)
Shumian Xin, Neal Wadhwa, Tianfan Xue, Jon Barron, Pratul Srinivasan, Jiawen Chen, **Ioannis Gkioulekas**, Rahul Garg

Single Scattering Modeling of Speckle Correlation
IEEE International Conference on Computational Photography, 2021
Chen Bar, Marina Alterman, **Ioannis Gkioulekas**, Anat Levin

A Theory of Fermat Paths for 3D Imaging Sonar Reconstruction
IEEE International Conference on Intelligent Robots and Systems, 2020
Eric Westman, **Ioannis Gkioulekas**, Michael Kaess

Towards Reflectometry from Interreflections
IEEE International Conference on Computational Photography, 2020
Kfir Shem-Tov*, Sai Praveen Bangaru*, Anat Levin, **Ioannis Gkioulekas**

Towards Learning-based Inverse Subsurface Scattering
IEEE International Conference on Computational Photography, 2020
Chengqian Che, Fujun Luan, Shuang Zhao, Kavita Bala, **Ioannis Gkioulekas**

A Volumetric Albedo Framework for 3D Imaging Sonar Reconstruction
IEEE International Conference on Robotics and Automation, 2020
Eric Westman, **Ioannis Gkioulekas**, Michael Kaess

Convolutional Approximations to the General Non-Line-of-Sight Imaging Operator
IEEE/CVF International Conference on Computer Vision, 2019 (oral presentation)
Byengjoo Ahn, Akshat Dave, Ashok Veeraraghavan, **Ioannis Gkioulekas**, Aswin Sankaranarayanan

Beyond Volumetric Albedo—A Surface Optimization Framework for Non-Line-of-Sight Imaging
IEEE/CVF Conference on Computer Vision and Pattern Recognition, 2019
Chia-Yin Tsai, Aswin Sankaranarayanan, **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**)
Shumian Xin, Sotirios Nousias, Kiriakos Kutulakos, Aswin Sankaranarayanan, Srinivasa Narasimhan, **Ioannis Gkioulekas**

STORM: Super-resolving Transients by OveRsampled Measurements

IEEE International Conference on Computational Photography, 2019
Ankit Raghuram*, Adithya Pediredla*, Srinivasa Narasimhan, **Ioannis Gkioulekas**, Ashok Veeraraghavan

An Evaluation of Computational Imaging Techniques for Heterogeneous Inverse Scattering
European Conference on Computer Vision, 2016 (spotlight presentation)
Ioannis Gkioulekas, Anat Levin, Todd Zickler

On the Appearance of Translucent Edges
IEEE/CVF Conference on Computer Vision and Pattern Recognition, 2015
Ioannis Gkioulekas, Bruce Walter, Edward Adelson, Kavita Bala, Todd Zickler

Dimensionality Reduction Using the Sparse Linear Model
Advances in Neural Information Processing Systems, 2011
Ioannis Gkioulekas, Todd Zickler

Wide-angle Micro sensors for Vision on a Tight Budget
IEEE Conference on Computer Vision and Pattern Recognition, 2011 (oral presentation)
Sanjeev Koppal, **Ioannis Gkioulekas**, Todd Zickler and Geoffrey Barrows

Spatial Bayesian Surprise for Image Saliency and Quality Assessment
International Conference on Image Processing, 2010
Ioannis Gkioulekas, Georgios Evangelopoulos, Petros Maragos

Refereed Extended Abstract Publications

Fluorescent Wavefront Shaping Using Incoherent Iterative Phase Conjugation
Frontiers in Optics and Laser Science, 2022
Dror Aizik, **Ioannis Gkioulekas**, Anat Levin

Imaging Inside Tissue Using Speckle Statistics
OSA Optical Tomography and Spectroscopy, 2022
Marina Alterman, Chen Bar, **Ioannis Gkioulekas**, Anat Levin

All photon analysis of ultrasonically sculpted virtual optical waveguides using a custom-designed physics-based renderer
Imaging and Sensing, 2021
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
Matteo Scopelliti, Hengji Huang, Adithya Pediredla, Srinivasa Narasimhan, **Ioannis Gkioulekas**, Maysamreza Chamanzar

A single scattering analysis of speckle correlation
OSA Computational Optical Sensing and Imaging, 2021
Chen Bar, Marina Alterman, **Ioannis Gkioulekas**, Anat Levin

Near-field Imaging Inside Scattering Layers
OSA Computational Optical Sensing and Imaging, 2021
Marina Alterman, Chen Bar, **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
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
Chen Bar, Marina Alterman, **Ioannis Gkioulekas**, Anat Levin

Does Geometric Sharpness Affect Perception of Translucent Material?
Vision Science Society Annual Meeting, 2018
Bei Xiao, Shuang Zhao, **Ioannis Gkioulekas**, Wenyan Bi, Kavita Bala

Effects of Shape and Color on the Perception of Translucency
Vision Science Society Annual Meeting, 2012
Bei Xiao, **Ioannis Gkioulekas**, A. Dunn, Shuang Zhao, Todd Zickler, Edward Adelson, Kavita Bala

Theses

A Framework for Inverse Scattering
Doctoral Dissertation, School of Engineering and Applied Sciences, Harvard University, 2016
Ioannis Gkioulekas

Computational Modeling of Visual Attention
Diploma Thesis, School of Electrical and Computer Engineering, National Technical University of Athens, 2009 (in Greek)
Ioannis Gkioulekas

Supervised Theses

Full-surround 3D Reconstruction using Kaleidoscopes
Doctor of Philosophy in Electrical and Computer Engineering, Carnegie Mellon University, 2023
Byeongjoo Ahn

Computational Interferometric Imaging
Doctor of Philosophy in Robotics, Carnegie Mellon University, 2023
Alankar Kotwal

3D Reconstruction using Differential Imaging
Doctor of Philosophy in Robotics, Carnegie Mellon University, 2023
Shumian Xin

3D Reconstruction with Fast Dipole Sums
Master of Science in Computer Science, Carnegie Mellon University, 2024
Hanyu Chen

An Angular Parameterization for Manifold Connections
Master of Science in Computer Science, Carnegie Mellon University, 2022
Oscar Dadfar

Robust 3D Reconstruction in Noisy Environments

Master of Science in Robotics, Carnegie Mellon University, 2021
Shirsendu Sukanta Halder

Towards Shape Reconstruction through Differentiable Rendering
Master of Science in Computer Science, Carnegie Mellon University, 2019
Sai Praveen Bangaru

Supervised Students and Postdoctoral Researchers

Postdoctoral researchers

Adithya Pediredla (Robotics Institute) March 2019 - January 2023

Doctoral students

Byeongjoo Ahn (Electrical and Computer Engineering) March 2019 - December 2023
Chengqian Che (Robotics Institute) September 2017 - August 2022
Bakari Hassan (Electrical and Computer Engineering) September 2019 - present
Alankar Kotwal (Robotics Institute) September 2017 - March 2023
Bailey Miller (Computer Science Department) September 2020 - present
Sreekar Ranganathan (Electrical and Computer Engineering) September 2023 - present
Tanli Su (Computer Science Department) September 2022 - present
Arjun Teh (Computer Science Department) September 2018 - present
Shumian Xin (Robotics Institute) September 2017 - January 2023

Master students

Dakshit Agrawal (Master of Science in Computer Vision) September 2022 - May 2022
Sai Praveen Bangaru (Master of Science in Computer Science) January 2018 - August 2019
Oscar Dadfar (Master of Science in Computer Science) September 2021 - May 2022
Yuan Dong (Master of Science in Computer Vision) January 2019 - December 2019
Tianwen Fu (Master of Science in Computer Vision) January 2024 - May 2024
Shirsendu Halder (Master of Science in Robotics) September 2019 - September 2021
Congrui Hetang (Master of Science in Computer Vision) January 2019 - December 2019
Benran Hu (Master of Science in Computer Science) September 2023 - present
Neham Jain (Master of Science in Robotics) September 2023 - present
Varun Jain (Master of Science in Computer Vision) January 2020 - December 2020
Akankshya Kar (Master of Science in Computer Vision) January 2020 - December 2020
Yuan Meng (Master of Engineering) January 2023 - May 2024
George Ralph (Master of Science in Computer Science) January 2022 - August 2023
Simon Seo (Master of Science in Computer Vision) January 2023 - December 2023
Jiajie Xu (Master of Science in Computer Vision) September 2022 - May 2022
Will Yu (Master of Science in Computer Vision) January 2023 - December 2023
Cheng-Hsin Wuu (Master of Science in Computer Vision) January 2021 - May 2022
Ningyuan Zheng (Master of Science in Computer Vision) January 2021 - May 2022

Undergraduate students

Jessica Cao (Computer Science) September 2019 - December 2019
Hanyu Chen (Computer Science) August 2022 - May 2024
Alan Jaffe (Computer Science) January 2018 - August 2018
Akshath Jain (Computer Science) January 2021 - present
Alice Lai (Electrical and Computer Engineering) January 2021 - May 2022
Vaishnavi Mantha (Computer Science) June 2020 - December 2020
Alexandra (Sasha) Mishkin (Mathematics) May 2024 - present

Andre Nascimento (Computer Science)	August 2021 - May 2022
Jan Orlowski (Computer Science)	September 2019 - December 2019
Po Ryan (Computer Science)	June 2020 - August 2022
Max Slater (Computer Science)	August 2021 - December 2021
Jiatian Sun (Computer Science)	April 2018 - July 2020
Hang Yin (Computer Science)	March 2019 - August 2019
Kevin You (Computer Science and Mathematics)	September 2023 - present
Robin Zheng (Computer Science)	January 2023 - May 2023

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," 2018 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 —"—, 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 —"—, 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)

Academic and Leadership Service

Technical Papers Committee, SIGGRAPH 2024

Area Chair, CVPR 2024

Awards Committee, International Conference on Computational Photography (ICCP) 2024

Program Committee, International Conference on Computational Photography (ICCP) 2024

Associate Editor, International Journal of Computer Vision (2020 - 2023)

Technical Papers Committee, SIGGRAPH Asia 2023

Program Committee, International Conference on Computational Photography (ICCP) 2023

Area Chair, CVPR 2023

Program Chair, International Conference on Computational Photography (ICCP) 2022

Technical Papers Committee, SIGGRAPH 2022

Program Committee, Eurographics Symposium on Rendering (EGSR) 2022

Technical Papers Committee, SIGGRAPH 2021

Session Chair, SIGGRAPH 2021

Program Committee, Eurographics Symposium on Rendering (EGSR) 2021

Session Chair, Eurographics Symposium on Rendering (EGSR) 2021

Program Committee, International Conference on Computational Photography (ICCP) 2021

Broadcast Chair, International Conference on Computational Photography (ICCP) 2021

Program Committee, Pacific Graphics 2021

Session Chair, Pacific Graphics 2021

Program Committee, International Conference on Computational Photography (ICCP) 2020

Finance Chair, International Conference on Computational Photography (ICCP) 2020

Session Chair, International Conference on Computational Photography (ICCP) 2020

Program Committee, Pacific Graphics 2020

Program Committee, International Conference on Computational Photography (ICCP) 2019

Program Committee, Pacific Graphics 2019

Program Committee, International Conference on Computational Photography (ICCP) 2018

Chair, Workshop on Computational Cameras and Displays (CCD) 2019 (held in conjunction with CVPR)

Local Arrangements Chair, International Conference on Computational Photography (ICCP) 2018

Chair, Workshop on Computational Cameras and Displays (CCD) 2018 (held in conjunction with CVPR)

Session Chair, International Conference on Computational Photography (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 - present)

Treasurer, IEEE NTUA Student Branch (2008-2009)

University Service

Robotics Institute, MSCV Admissions Committee	2022 - present
Robotics Institute, Faculty Hiring Committee	2021 - present
Robotics Institute, Ph.D. Admissions Committee	2018 - 2021
Robotics Institute, MSCV Admissions Committee (reviewer)	2017 - present

Teaching Experience

Organizer, Course: Computational Interferometric Imaging, SIGGRAPH, 2023

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

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

Organizer, Tutorial: Physics-based Differentiable Rendering, CVPR, 2021

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

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

Instructor, 16-621, 16-622 MSCV Capstone I & II, Fall 2022 - present

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

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

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

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

Outreach Activities

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

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

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

Other Information

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