Suren M. Jayasuriya *CV*

CONTACT INFORMATION	950 S. Forest Mall, Stauffer B, Room 252 Tempe, AZ 85281 *E-mail:* sjayasur@asu.edu *Website:* https://web.asu.edu/imaging-lyceum

EDUCATION

Ph.D. in Electrical and Computer Engineering, Cornell University,
Ithaca, NY, August 2012 - January 2017

> Committee: Alyosha Molnar (chair), Alyssa Apsel, Steve Marschner

> Thesis: Plenoptic Imaging and Vision using Angle Sensitive Pixels

M.S. in Electrical and Computer Engineering, Cornell University,
Ithaca, NY, August 2015

B.S. in Mathematics and B.A. in Philosophy, University of Pittsburgh,
Pittsburgh, PA, August 2008 - April 2012

- Graduated Summa Cum Laude with departmental honors in Mathematics

RESEARCH INTERESTS

Computational imaging and photography, computer vision and machine learning, mixed-signal integrated circuits and sensor interfaces, STEAM education research and philosophy

EMPLOYMENT

Assistant Professor, School of Arts, Media and Engineering (AME) (tenure home) with a joint appointment in the School of Electrical, Computer and Energy Engineering (ECEE), Arizona State University, January 2018 - present

Postdoctoral Fellow, The Robotics Institute, Carnegie Mellon University, October 2016 - December 2017

Graduate Research Assistant, School of Electrical and Computer Engineering (ECE), Cornell University, August 2012 - October 2016

HONORS AND AWARDS

Image Electronics Technology Excellence Award from The Institute of Image Electronics Engineers of Japan, 2021

Finalist for Best Diversity, Equity & Inclusion Paper at ASEE 2020

Best Demo award at ICCP 2019

CVPR 2019 Outstanding Reviewer

Fulton Schools of Engineering Top 5% Teaching Award, 2019 & 2021

Best Demo Award at 21st Meeting on Image Recognition and Understanding (MIRU) in Japan, 2018

Best Presentation Award for the Information Processing Society of Japan (IPSJ) SIG-CG in 2018

ICCV 2017 Young Researcher Travel Award

2nd place in Cornell's 3MT (Three Minute Thesis) competition, Spring 2016

Qualcomm Innovation Fellowship, 2015 - 2016

Cornell ECE Outstanding PhD TA Award - 2015

Best Paper award at ICCP 2014

NSF Graduate Research Fellowship, Fall 2013 - Spring 2017

Jacobs Fellowship - Cornell ECE Dept, Fall 2012 - Summer 2013

University Scholar (awarded to top 2 percent of undergraduates in Pitt's College of Arts and Sciences) - Spring 2011

Culver Award (awarded by Pitt's Department of Mathematics for superior academic achievement, hard work, and proven ability in mathematics) - Spring 2011

University of Pittsburgh Honors Tuition Scholarship recipient (4 year full-tuition scholarship given for academic achievement)- Fall 2008 - Spring 2012

PUBLICATIONS

Book Chapters:

1. Suren Jayasuriya, "Computational Imaging for Human Activity Analysis", To appear in Contactless Human Activity Analysis, 1st Edition, Editors: Md Atiqur Rahman Ahad, Upal Mahbub, Tauhidur Rahman, Springer 2020 [invited book chapter]

2. Suren Jayasuriya, "Image Sensors", In Computer Vision: A Reference Guide, 2nd Edition, Editor-in-Chief: Katsushi Ikeuchi, Springer 2020 [invited book chapter]

3. Henry Braun, Pavan Turaga, Andreas Spanias, Sameeksha Katoch, Suren Jayasuriya, Cihan Tepedelenlioglu, Reconstruction-Free Compressive Vision for Surveillance Applications, Synthesis Lectures on Signal Processing, Morgan Claypool, 2019 [booklet]

Journal Papers:

1. Albert Reed, Thomas Blanford, Daniel Brown, Suren Jayasuriya, "SINR: Deconvolving Circular SAS Images Using Implicit Neural Representations", IEEE Journal of Selected Topics in Signal Processing (special issue) [Impact Factor: 7.695]

2. Ripon Saha, Esen Salcin, Jihoo Kim, Joseph Smith, Suren Jayasuriya, "Turbulence Strength Cn2 Estimation from Video using Physics-based Deep Learning", Optics Express 2022 [Impact Factor: 3.894]

3. Odrika Iqbal, Victor Torres, Sameeksha Katoch, Andreas Spanias, Suren Jayasuriya, "Adaptive Subsampling for ROI-based Visual Tracking: Algorithms and FPGA Implementation", IEEE Access 2022[Impact Factor: 3.367]

4. Jianwei Zhang, Hao Ren, Suren Jayasuriya, Xiaojun Tian, Junseok Chae, "The Biological Memory Effect in Microbial Fuel Cell Biosensors," IEEE Sensors Journal 2022 [Impact Factor: 4.235]

5. Joshua Rego, Huaijin Chen, Shuai Li, Jinwei Gu, Suren Jayasuriya, "Deep Camera Obscura: An Image Restoration Pipeline for Lensless Pinhole Photography", Optics Express 2022 [Impact Factor: 3.894]

Legend: † is ASU graduate student, ⋆ is ASU undergraduate, ∗ is co-first author.

6. Karthik K Kulkarni, Florian A Schneider, Tejaswi Gowda, Suren Jayasuriya, Ariane Middel, MaRTiny-A Low-Cost Bio-meteorological Sensing Device with Embedded Computer Vision for Urban Climate Research, Frontiers in Environmental Science (special topic on Urban Climate Informatics) 2022 [Impact Factor: 4.24]

7. Sreenithy Chandran, Hiroyuki Kubo, Takuya Funatomi, Yasuhiro Mukaigawa, Suren Jayasuriya, "Slope Disparity Gating: Systems and Applications", IEEE Transactions on Computational Imaging 2022 [Impact Factor: 4.015]

8. Tsuji Mayuka, Hiroyuki Kubo, Suren Jayasuriya, Takuya Funatomi, Yasuhiro Mukaigawa, "Touch Sensing for a Projected Screen Using Slope Disparity Gating", IEEE Access 2021 [Impact Factor: 3.367]

9. Catherine Chong, Jianwei Zhang, Jing Li, Teresa Wu, Gina Dumkrieger, Simona Nikolova, Katherine Ross, Gabriela Stegmann, Julie Liss, Todd J Schwedt, Suren Jayasuriya. Visar Berisha, "Altered Speech Patterns in Subjects with Post-Traumatic Headache due to Mild Traumatic Brain Injury", The Journal of Headache and Pain 2021 [Impact Factor: 4.797]

10. Xiaomeng Liu, Kristofer Henderson, Joshua Rego, Suren Jayasuriya, Sanjeev Koppal, "Dense Lissajous Sampling and Interpolation for Dynamic Light-Transport", Optics Express 2021[Impact Factor: 3.894]

11. Joshua Cruz†, Noa Bruhis†, Nadia Kellam, Suren Jayasuriya, "Students' Implicit Epistemologies when Working at the Intersection of Engineering and the Arts", The International Journal of STEM Education 2021 [Impact Factor: 5.012]

12. Ravi Bhushan†∗, Karthik Kulkarni†∗, Vishal Pandey†∗, Connor Rawls, Brandon Mechtley, Suren Jayasuriya, and Christian Ziegler, "ODO: Design of Multimodal Chatbot for an Experiential Media System", Multimodal Technologies and Interaction 2020 [Impact Factor: 3.08]

13. Kristofer Henderson, Xiaomeng Liu, Justin Folden, Brevin Tilmon, Suren Jayasuriya, Sanjeev Koppal, "Design and Calibration of a Fast Flying-Dot Projector for Dynamic Light Transport Acquisition", IEEE Transactions on Computational Imaging (TCI) 2020 [Impact Factor: 4.015]

14. Hiroyuki Kubo, Suren Jayasuriya, Takafumi Iwaguchi, Takuya Funatomi, Yasuhiro Mukaigawa, Srinivasa Narasimhan, "Programmable Non-Epipolar Indirect Light Transport: Capture and Analysis, IEEE Transactions on Visualization and Computer Graphics 2019 (Presented as a demo at the Consumer Entertainment Showcase (CES) 2020), [Impact Factor: 4.558]

15. Jagpreet Chhatwal*, Suren Jayasuriya*, Elamin Elbasha. "Changing Cycle Lengths in State-Transition Models: Challenges and Solutions". Medical Decision Making, July 2016. [Impact Factor: 2.309]

16. Suren Jayasuriya, Sriram Sivaramakrishnan, Ellen Chuang, Debashree Guruaribam, Albert Wang, Alyosha Molnar. "Dual Light Field and Polarization Imaging using CMOS Diffractive Image Sensors", Optics Letters 2015 [Impact Factor: 3.866]

17. Suren Jayasuriya, Zachary P. Kilpatrick. "Effects of Time-Dependent Stimuli in a Competitive Neural Network Model of Perceptual Rivalry". Bulletin of Mathematical Biology. Vol 24, No 6: 1396-1426 (2012). [Impact Factor: 1.812]

Conference Publications[1]:

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[1]Some CS conferences in computer vision, machine learning, and computer architecture are considered archival rather than journals

Legend: † is ASU graduate student, ⋆ is ASU undergraduate, ∗ is co-first author.

1. Md Farhan Tasnim Oshim, Toral Surti, Charlotte Goldfine, Stephanie Carreiro, Deepak Ganesan, Suren Jayasuriya, Tauhidur Rahman, "Eulerian Phase-based Motion Magnification for High Fidelity Vital Sign Estimation with Radar in Clinical Settings", IEEE Sensors Conference 2022 [30-40% acceptance rate]

2. Albert Reed, Thomas E. Blanford, Daniel C. Brown, Suren Jayasuriya, "Implicit Neural Representations for Deconvolving SAS Images", MTS/IEEE Oceans 2021 [30-40% acceptance rate]

3. Gregory Vetaw, Albert Reed, Daniel C. Brown, Suren Jayasuriya, "A 3D GAN Architecture for Volumetric Synthetic Aperture Sonar", MTS/IEEE Oceans 2021 [30-40% acceptance rate]

4. Albert Reed, Hyojin Kim, Rushil Anirudh, K. Adithya Mohan, Kyle Champley, Jingu Kang, Suren Jayasuriya, "Dynamic CT Reconstruction from Limited Views with Implicit Neural Representations and Parametric Motion Fields", IEEE International Conference on Computer Vision (ICCV) 2021 [25% acceptance rate]

5. Nianyi Li, Simron Thapa, Cameron Whyte, Albert Reed, Suren Jayasuriya, Jinwei Ye, "Unsupervised Non-Rigid Image Distortion Removal via Grid Deformation", IEEE International Conference on Computer Vision (ICCV) 2021[25% acceptance rate]

6. Dominique Dredd, Nadia Kellam, Suren Jayasuriya, "Zen and the Art of STEAM: Student Knowledge and Experiences in Interdisciplinary and Traditional Engineering Capstone Experiences", IEEE Frontiers in Education (FIE) 2021 [typically 40-50% acceptance rate]

7. Madeleine Jennings, Jorge Sandoval, Jeanne Sanders, Mirka Koro, Nadia Kellam, Suren Jayasuriya, "WIP: Use of AI-Generated Visual Media in Interviews to Understand Power Differentials in Gender, Romantic, and Sexual Minority (GRSM) Students", IEEE Frontiers in Education (FIE) 2021 [typically 40-50% acceptance rate]

8. Jianwei Zhang, Suren Jayasuriya, Visar Berisha, "Restoring degraded speech via a modified diffusion model", INTERSPEECH 2021[typically 40-45% acceptance rate]

9. Joshua Rego†, Karthik Kulkarni†, Suren Jayasuriya, "Robust Lensless Image Reconstruction via PSF Estimation", IEEE Winter Conference on Applications of Computer Vision (WACV) 2021 [typically 40-45% acceptance rate]

10. John Janiczek†, Parth Thaker†, Gautam Dasarathy, Christopher Edwards, Philip Christensen, Suren Jayasuriya, "Differentiable Programming for Hyperspectral Unmixing using a Physics-based Dispersion Model", European Conference on Computer Vision (ECCV) 2020 [typically 25-28% acceptance rate]

11. Odrika Iqbal†, Saquib Siddiqui†, Joshua Martin⋆, Sameeksha Katoch†, Andreas Spanias, Daniel Bliss, Suren Jayasuriya, "Design and FPGA Implementation of an Adaptive Video Subsampling Algorithm for Energy-Efficient Single Object Tracking", IEEE International Conference on Image Processing (ICIP) 2020 [typically 40-50% acceptance rate]

12. Olivia Christie⋆, Joshua Rego†, Suren Jayasuriya, "Analyzing Sensor Quantization of RAW Images for Visual SLAM", IEEE International Conference on Image Processing (ICIP) 2020 [typically 40-50% acceptance rate]

13. Madeleine Jennings†, Rod Roscoe, Nadia Kellam, Suren Jayasuriya, "A Review of the State of LGBTQIA+ Student Research in STEM and Engineering Education", American Society of Engineering Education (ASEE) Conference 2020 (Finalist for Best Diversity, Equity & Inclusion Paper)

14. Malena Espanol, Suren Jayasuriya, Mohit Malu†, "Multilevel Methods for Imaging Applications", OSA Imaging and Applied Optics Congress 2020 (invited abstract/talk), [2 page technical abstract]

15. Albert Reed†, Isaac Gerg, John McKay, Daniel C. Brown, David Williams, Suren Jayasuriya, "Using Rendering and Generative Adversarial Neworks for Artificial SAS Image Generation", MTS/IEEE Oceans 2019

16. Divya Mohan⋆, Sameeksha Katoch†, Suren Jayasuriya, Pavan Turaga, Andreas Spanias, "Adaptive Video Subsampling for Energy-Efficient Object Detection", 53nd Asilomar Conference on Signals, Systems and Computers 2019

17. Tomoki Ueda, Hiroyuki Kubo, Suren Jayasuriya, Takuya Funatomi, Yasuhiro Mukaigawa, "Slope Disparity Gating using a Synchronized Projector-Camera System", IEEE International Conference on Computational Photography (ICCP) 2019 (Best Demo Award)

18. Sreenithy Chandran† and Suren Jayasuriya, "Adaptive Lighting for Data-Driven NLOS 3D Localization and Object Identification", British Machine Vision Conference (BMVC) 2019, (Spotlight paper with 8.5% acceptance rate)

19. Joshua Cruz†, Noa Bruhis†, Nadia Kellam, Suren Jayasuriya, "WIP: Epistemologies and Discourse Analysis for Transdisciplinary Capstone Projects in a Digital Media Program", American Society of Engineering Education (ASEE) 2019

20. Divya Mohan⋆, Sameeksha Katoch†, Suren Jayasuriya, Pavan Turaga, Andreas Spanias, "An REU Experience in Machine Learning and Computational Cameras", IEEE Frontiers in Education (FIE) 2019

21. Rajhans Singh†, Pavan Turaga, Suren Jayasuriya, Ravi Garg, Martin Braun, "Non-Parametric Priors For Generative Adversarial Networks", International Conference on Machine Learning (ICML) 2019 [22% acceptance rate]

22. Mark Buckler, Philip Bedoukian, Suren Jayasuriya, Adrian Sampson. "EVA^2: Exploiting Temporal Redundancy for Live Computer Vision", International Symposium on Computer Architecture (ISCA) 2018 [16% acceptance rate]

23. Li-Chi Huang†, Kuldeep Kulkarni†, Anik Jha†, Suhas Lohit†, Suren Jayasuriya, Pavan Turaga. "CS-VQA: Visual Question Answering with Compressively Sensed Images", IEEE International Conference on Image Processing (ICIP) 2018 [typically 40-50% acceptance rate]

24. Hiroyuki Kubo, Suren Jayasuriya, Takafumi Iwaguchi, Takuya Funatomi, Yasuhiro Mukaigawa, Srinvasa Narasimhan, "Acquiring and Characterizing Plane-to-Ray Indirect Light Transport", IEEE International Conference on Computational Photography (ICCP) 2018 (received the Best Demo Award at 21st Meeting on Image Recognition and Understanding (MIRU) 2018 the best presentation award at Information Processing Society of Japan (IPSJ) SIG-CG in 2018)

25. Mark Buckler, Suren Jayasuriya, Adrian Sampson. "Reconfiguring the Imaging Pipeline for Computer Vision", International Conference on Computer Vision (ICCV) 2017 [25% acceptance rate]

26. Mayank Gupta†∗, Arjun Jauhari*, Kuldeep Kulkarni†, Suren Jayasuriya, Alyosha Molnar, Pavan Turaga, "Compressive Light Field Reconstructions using Deep Learning". CVPR Workshop on Computational Cameras and Displays (CCD) 2017.

27. Suren Jayasuriya, Orazio Gallo, Jinwei Gu, Timo Aila, Jan Kautz. "Reconstructing Intensity Images from Binary Spatial Gradient Cameras". CVPR Workshop on Embedded Vision (EVW) 2017

28. Mark Buckler, Suren Jayasuriya, Adrian Sampson."Rethinking the Camera Pipeline for Computer Vision", Workshop on Approximate Computing across the Stack (WAX) 2017

29. Huaijin Chen*, Suren Jayasuriya*, Jiyue Yang, Judy Stephen, Sriram Sivaramakrishnan, Ashok Veeraraghavan, Alyosha Molnar. "ASP Vision: Optically Computing the First Layer of CNNs using Angle Sensitive Pixels", IEEE Conference on Computer Vision and Pattern Recognition (CVPR) 2016 (oral presentation, <4% of submissions), [Acceptance rate 25%, oral acceptance rate: 4%]

30. Suren Jayasuriya, Adithya Pediredla, Sriram Sivaramakrishnan, Alyosha Molnar, Ashok Veeraraghavan. "Depth Fields: Extending Light Field Techniques to Time-of-Flight Imaging", International Conference on 3D Vision (3DV) 2015 (oral presentation with 20% acceptance rate)

31. Suren Jayasuriya*, Dong Yang*, Alyosha Molnar. "A Baseband Technique for Automated LO Suppression Achieving below -80dBm in Wideband Passive Mixer-First Receivers". IEEE Custom Integrated Circuits Conference (CICC), September 2014.

32. Matthew Hirsch*, Sriram Sivaramakrishnan*, Suren Jayasuriya*, Albert Wang, Alyosha Molnar, Ramesh Raskar, Gordon Wetzstein. "A Switchable Light Field Camera Architecture using Angle Sensitive Pixels and Dictionary-based Sparse Coding". IEEE International Conference on Computational Photography (ICCP) 2014 (Best Paper Award)

Papers in preparation or currently under submission:

1. Suren Jayasuriya, Steven Reich, Jeffrey P. Wheeler. "On the Inverse Erdős-Heilbronn Problem for Restricted Set Addition in Finite Groups". (ArXiv, preprint)

Other Publications:

1. Jagpreet Chhatwal, Suren Jayasuriya, Elamin Elbasha. "Changing Cycle Lengths in State-Transition Models: Doing it the Right Way". International Society for Pharmacoeconomics and Outcomes Research (ISPOR Connections), October 2014 (Invited Paper) [standard, magazine article, 3 pages]

2. Christopher Torng, Moyang Wang, Bharath Sudheendra, Nagaraj Murali, Suren Jayasuriya, Shreesha Srinath, Taylor Pritchard, Robin Ying, and Christopher Batten, "Experiences using a Novel Python-Based Hardware Modeling Framework for Computer Architecture Test Chips", 28th ACM/IEEE Symp. on High-Performance Chips (HOTCHIPS'16) Student Poster Session, (Technical Abstract) Aug. 2016 [minor, abstract, 2 pages]

Legend: † is ASU graduate student, ⋆ is ASU undergraduate, ∗ is co-first author.
Legend: † is ASU graduate student, ⋆ is ASU undergraduate, ∗ is co-first author.

3. Suren Jayasuriya, Jagpreet Chhatwal, and Elamin Elbasha, "Changing Cycle Lengths in Discrete-time Markov Models: Challenges and Solutions", The 35th Annual Meeting of the Society of Medical Decision Making, (Technical Abstract), Oct. 2012. [minor, abstract, 1 page]

4. Pfenning, Nancy. Contributions by Bo Wang and Suren Jayasuriya. Elementary Statistics: Looking at the Big Picture, Student Solutions Manual. Duxbury Press, April 2010. ISBN-10: 049582996X

PATENTS

1. Depth field imaging apparatus, methods, and applications, Alyosha Molnar, Suren Jayasuriya, Sriram Sivaramakrishnan, US Patent No. 10605916 (granted), 3/31/2020

2. Configurable Image Processing System and Methods for Operating a Configurable Image Processing System for Multiple Applications, Mark Buckler, Suren Jayasuriya, Adrian Sampson, US Non-Provisional Patent Application 15/952,719 (non-provisional application) - 04/13/2018

3. Tracking-based Motion Deblurring via Coded Exposure, Suren Jayasuriya, Odrika Iqbal, Andreas Spanias, US Provisional Patent Application 63/041,260 (provisional application), 6/15/2020

4. Systems and Methods for Differentiable Programming for Hyperspectral Unmixing, John Janiczek, Gautam Dasarathy, Christopher Edwards, Philip Christensen, Suren Jayasuriya, US Provisional Patent Application 63/041,733 (provisional application), 5/6/2020

5. Adaptive Video Subsampling for Energy-Efficient Object Detection, Divya Mohan, Andreas Spanias, Pavan Turaga, Sameeksha Katoch, Suren Jayasuriya, US Non-Provisional Patent Application 16/901,961 (non-provisional application), 6/15/2020

6. Systems and Methods for Adaptive Lighting for Data-Driven Non-Line-of-Sight Three-Dimensional Capabilities, Sreenithy Chandran and Suren Jayasuriya, US Non-Provisional Paten Application 16/737,374 (non-provisional application), 1/8/2020

TEACHING EXPERIENCE

Instructor:

- Fall 2020, EEE 202: Circuits I, AME 130: Prototyping Dreams (co-taught with Ed Finn)

- Spring 2020, EEE 598: Physics-based Computer Vision, AME 494/598: Minds and Machines

- Fall 2019, AME/EEE 598: Computational Image Understanding and Pattern Analysis

- Spring 2019, AME 520: Understanding Activity

- Fall 2018, EEE 202: Circuits I, AME 130: Prototyping Dreams (co-taught with Ed Finn)

- Spring 2018, AME/EEE 598: Computational Cameras, Lighting and Displays

- (at Cornell) Spring 2016, ECE 4250: Digital Signal and Image Processing (co-taught with Amandy Nwana)

Teaching Assistant:

- (at Cornell) Spring 2014, ECE 2100: Introduction to Circuits, (Outstanding PhD TA Award)

- (at UPitt) Fall 2010, Statistics 1000: Applied Statistical Methods Honors, University of Pittsburgh, Fall 2010

  Outreach:

- **Instructor**, ASU Digital Culture Summer Institute (DCSI), *How Can Computers Think?*, June 2018 and 2019

- **Instructor**, ASU Young Engineers Shape the World, *Computer Vision and AI*, workshop in Fall 2019, *Designing Digital-Physical Instruments*, 2 workshops in Spring 2019

- **Volunteer**, Lego Robotics outreach at Cayuga Heights Elementary School, Ithaca, NY Fall 2015

- **Tutor**, Math Assistance Center, University of Pittsburgh, September 2011 - May 2012

GRANTS

Funded Awards:

1. **ASU SenSIP Center:** "SenSIP Project: Efficient Machine Learning Algorithms for Surveillance Systems ", $31,500 (my share: $22,050), PI: Jayasuriya (70% share), Co-PI: Andreas Spanias (ASU), 2022 - 2023

2. **National Science Foundation:** "CC* Compute: The Arizona Federated Open Research Computing Enclave (AFORCE)", $399,997 (my share: $43999), PI: Jannewein (ASU) , Co-PI: Jayasuriya (11% share), 2021 - 2023

3. **Air Force SBIR Phase II, Prime: Astrobotic:** "RetiNav: Event-driven Relative Navigation", $170,000, PI: Suren Jayasuriya (100% share), 2021-2023

4. **Air Force SBIR Phase I, Prime: Astrobotic:** "RetiNav: Event-driven Relative Navigation", $10,002, PI: Suren Jayasuriya (100% share), 2021

5. **National Endowment of the Humanities:** "Artificial Intelligence in Digital Culture: Undergraduate Certificate Program in Intelligent Media and Society", $100,000 (my share: $50,000), PI: Suren Jayasuriya (50% share), Co-PIs: Ed Finn (ASU), Sha Xin Wei (ASU) , 2021-2023

6. **DoD SERDP:** "Joint Beamforming and Automated Target Recognition for SAS", $149,566 PI: Suren Jayasuriya (100% share), 2021 -2023

7. **Office of Naval Research:** "Improving Automatic Target Recognition through Dataset Augmentation using Generative Adversarial Networks in Synthetic Aperture Sonar ", $298,730, PI: Jayasuriya (100% share), 2020 - 2023

8. **National Science Foundation:** "DTI: ImageSTEM: Middle School Teacher and Student's Experiences with Artificial Intelligence via Computational Cameras", $797,174 (my share: $479,304), PI: Suren Jayasuriya (60% share), Co-PIs: Kimberlee Swisher (ASU), Wendy Barnard (ASU), Terri Kurz (ASU), Ramana Pidaparti (UGA), Dawn Robinson (UGA), John Mativo (UGA), 2020-2024

9. **National Science Foundation:** "JST: SCC-PG: Understanding Heat Resiliency via Physiological, Mental, and Behavioral Health Factors for Indoor and Outdoor Urban Environments", $75,000 (my share: $32,500), PI: Jayasuriya (50% share), Co-PIs: Ariane Middel (ASU), Tauhidur Rahman (UMass Amherst), Jamie Mullins (UMass Amherst), 2020 - 2021

10. **ASU SenSIP Center:** "SenSIP Project-Reconfigurable Image Sensing for Embedded Computer Vision", $31,500, PI: Jayasuriya (70% share), Co-PI: Andreas Spanias (ASU), 2020 - 2021

11. **National Science Foundation:** "REU Site: Computational Imaging and Mixed-Reality for Visual Media Creation and Visualization", $324,000 (my share: $129,600), PI: Jayasuriya (40% share), Co-PIs: Robert LiKamWa (ASU), Andreas Spanias (ASU), National Science Foundation 2020-2023

12. **ASU SenSIP Center:** "SenSIP Project: Adaptive Spatio-temporal Sampling for High Frame Rate Cameras", $31,500 (my share: $22,050), PI: Jayasuriya (70% share), Co-PI: Andreas Spanias (ASU), 2020 - 2021

13. **Qualcomm:** "Adaptive Image Subsampling via Reinforcement Learning for Energy-Efficient Object Detection", $40,000 (my share: $28,000), PI: Jayasuriya (70% share), Co-PI: Andreas Spanias, 2020 - 2022

14. **National Science Foundation:** "Software-Defined Imaging for Energy-Efficient Visual Computing", $332,999 (my share: $166,499.50), PI: Suren Jayasuriya (50% share), Co-PIs: Robert LiKamWa (ASU), Adrian Sampson (Cornell), 2019-2022

15. **National Science Foundation:** "Dynamic Light Transport Acquisition and Applications to Computational Illumination", $250,000, PI: Jayasuriya (100% share), National Science Foundation SHF, 2019-2022

16. **National Endowment of the Humanities:** "Technological Anxiety and Hope: Artificial Intelligence in Digital Culture", $34,999 (my share: $13,999), PI: Suren Jayasuriya (40% share), Co-PIs: Ed Finn (ASU), Pavan Turaga (ASU), Sha Xin Wei (ASU) , 2019-2020

17. **ASU HRI:** "Discovering the Sensorimotor Physics of the Violin through Analysis with Computational Photography and Perturbation by Novel Digital-Physical Prototyping", $4,500, PI: Seth Thorn (ASU), Co-PI Suren Jayasuriya, Byron Lahey (ASU), 2019 - 2020

18. **ASU HRI:** "Lensless Cameras using Woven Fabric for Wearables and Lifelogging", $10,000 (my share: $2500), PI: Suren Jayasuriya, Co-PIs: Jennifer Blain Christen (ASU), Erika Hanson (ASU), Pavan Turaga (ASU), 2019 - 2020

19. **Intel Corporation:** "Generative Adversarial Nets for Robust Defect Classification", Total: $179,095 (my share: $53,728.50), PI: Pavan Turaga (ASU), Co-PI: Suren Jayasuriya (30% share), Intel Corporation, 2018 - 2021

20. **ASU SenSIP Center:** "SenSIP Project - Infrared Imaging in Harsh Environments for UAVs", $56,500 (my share: $39,550), PI: Suren Jayasuriya (70% share), Co-PI: Andreas Spanias (ASU), 2018-2020

21. **National Science Foundation:** "Exploring Epistemologies where Engineering Meets Art", $197,698 (my share: $98,849), PI: Suren Jayasuriya (50% share), Co-PI: Nadia Kellam (ASU), National Science Foundation EEC, 2018-2020

22. **ASU FSE:** "Non-line-of-sight (NLOS) Imaging and Reconstruction using Light Transport", Total: $40,000, PI Suren Jayasuriya (100%), ASU FSE seed grant, 2018-2019

23. **ASU HRI-FSE:** "Light and Sound Transport Tensors for Experiential Media Systems", Total: $40,000 (my share: $10,000), PI Suren Jayasuriya (25%), Co-PIs: Sha Xin Wei (ASU), David Tineapple (ASU), Visar Berisha (ASU) , 2018-2019

PRESENTATIONS   Invited Talk, TinyML Organization, September 2020
  "Towards Software-Defined Imaging: Adaptive Video Subsampling for Energy-Efficient Object Tracking"

Invited Talk, Department of Computer Science, Lousiana State University, November 2019
  "Projector-Camera Systems for Light Transport Estimation and NLOS Imaging"

Invited Talk, Adobe Research, San Jose, California, August 2019
  "Synchronized Projector-Camera Systems for Light Transport Estimation"

Seminar, Department of Acoustics, Pennsylvania State University, August 2019
  "Light Transport for Computer Vision and Machine Learning"

Seminar, Department of Computer Science, University of Massachusetts, Amherst, July 2019
  "Light Transport Estimation using Synchronized Projector-Camera Systems"

Seminar, Qualcomm Corporation, Santa Clara, April 2019
  "Computational Sensors for Energy-efficient Computer Vision"

Seminar, Raytheon Corporation, Tucson, April 2019
  "Light Transport for Imaging through Scattering Media and Non-Line-of-Sight Imaging"

Colloquium, Department of Electrical and Computer Engineering, University of Florida, December 2018
  "Light Transport for Computer Vision and Machine Learning"

Colloquium, Department of Electrical and Computer Engineering, University of Florida, December 2018
  "Light Transport for Computer Vision and Machine Learning"

Applied Research Laboratory, Pennsylvania State University, December 2018
  "Light Transport for Computer Vision and Machine Learning"

Computer Vision and Image Media Conference, November 2018
  "Designing New Computational Cameras and Projectors for Physics-based Imaging and Vision"

Colloquium, Nara Institute of Science and Technology (NAIST) & Osaka University, July 2018
  "Designing New Computational Cameras and Projectors for Physics-based Imaging and Vision"

Graphics/Vision Seminar, Cornell University, March 2018
  "Acquiring and Characterizing Plane-to-Ray Indirect Light Transport using a Synchronized Projector-Camera System"

SenSIP Seminar, Arizona State University, January 2018
  "Energy-efficient Computer Vision using Hardware-Software Co-Design"

Applied Research Laboratory, Pennsylvania State University, September 2017
  "Inverse Imaging Problems using Deep Learning"

School of Arts, Media + Engineering, Arizona State University, April 2017
    "Building Intelligent Cameras for the Future"

University of Pittsburgh Department of Statistics Colloquium, March 2017
    "Deep Learning for Image Analysis and Synthesis",

University of Pittsburgh Undergraduate Mathematics Seminar, January 2017
    "Deep Learning in Artificial Intelligence", Tutorial

Computer Vision and Pattern Recognition (CVPR), July 2016
    "ASP Vision: Optically Computing the First Layer of CNNs with Angle Sensitive Pixels", Oral Presentation

Energy and Information Systems Seminar, Carnegie Mellon University, May 2016
    "Plenoptic Imaging and Vision using Angle Sensitive Pixels", invited talk

Pennsylvania State University, Deep Learning Workshop
    "A Gentle Introduction to Deep Learning", Co-hosted with Kuldeep Kulkarni (ASU)

International Conference on 3D Vision (3DV), October 2015
    "Depth Fields: Extending Light Field Techniques to Time-of-Flight Imaging", Oral Presentation

IEEE International Conference on Computational Photography (ICCP), April 2015
    "Dual Light Field and Polarization Imaging using CMOS Diffractive Image Sensors", Poster

IEEE Custom Integrated Circuits Conference (CICC), September 2014
    "A Baseband Technique for Automated LO Suppression Achieving below -80dBm in Wideband Passive Mixer-First Receivers", 20min talk

IEEE International Conference on Computational Photography (ICCP), May 2014
    "A Switchable Light Field Camera Architecture using Angle Sensitive Pixels and Dictionary-based Sparse Coding", 20min talk (**Best Paper Award**)
    "Angle Sensitive Pixels: A New Platform for Computational Photography", Poster

Annual Meeting of the Society of Medical Decision Making, October 2013
    "Changing Cycle Lengths in Markov Models", 20min talk, (**Finalist for the Lee B. Lusted Student Award**)

DARPA presentation on software-defined radios including electronics demonstration, October 2013

Joint AMS-MAA Mathematics Meetings, Boston, January 4-7, 2012
    Invited for a 15 minute presentation at the AMS Session on Undergraduate Research, *"Finite-Dimensional Frame Theory over Arbitrary Fields"*

STUDENT
MENTORING

PhD Students:

- Sreenithy Chandran

- Albert Reed

- Jianwei Zhang (co-advised with Dr. Visar Berisha)

- Odrika Iqbal (co-advised with Dr. Andreas Spanias)

- Gregory Vetaw

- Madeleine Jennings (co-advised with Dr. Nadia Kellam)

- Joshua Rego

- Ripon Saha

- Lein De Leon

- Christopher Voelkel

MS Students:

- Joshua Rego (graduated Fall 2020, current PhD student)

- John Janiczek (co-advised with Dr. Gautam Dasarathy, graduated Spring 2020, now at Zoom)

- Sreenithy Chandran (graduated Spring 2019, current PhD student)

- Cameron Whyte (co-advised with Dr. Malena Espanol, graduated Spring 2021, Data Scientist at Vector Remote Care)

- Karthik Kulkarni (co-advised with Dr. Ariane Middel, graduated Spring 2021, now at DataSeers)

- Victor Torres (graduated Spring 2022, now at Microchip)

- Olivia Christie (graduated Spring 2022, now at Raytheon)

Barrett Honors Thesis Students:

- Cameron Whyte (honors thesis, graduated Spring 2020, current MS student)

- Michael Li (honors thesis)

REU Students:

- ASU FURI program: Paul Nathan, Summer 2018 – Fall 2018, Olivia Christie - Fall 2019 - Spring 2020, Celine Cheung - Summer 2019, Ryan Widjaja – Summer 2020 - Fall 2020

- SenSIP REU students: Divya Mohan (Summer 2018), Joshua Martin (Summer 2019), Olivia Christie (Summer 2019)

- NSF REU students: Olivia Christie (Fall 2020 - Spring 2021)

High School Interns:

- Catherine Wong (Basis Chandler High School), Fall 2018-Spring 2019. Project: AI-generated Artwork, accepted to MIT for undergraduate

Student Committee:

- PhD committee: Aditee Shrotre, Charan Prakash, Sarah Bearman, Suhas Lohit, Tejas Borkar, Todd Houghton, Yingpeng Deng, Gowtham Muniraju, Dustin Padilla, Sam Dodge, Rajhans Singh

- MS committee: Sridhar Gunnam, Sai Prajwal Kotamraju, Rakshith Subramanyam, Sathish Katukuri, Saquib Saddiqui, Sambarta Ray, Van Nguyen, Kaushik Seetharam

- Honors thesis committee: Heyde Makimaa, Schuyler Schenburger

Student Awards:

- Albert Reed: NDSEG Fellowship 2020 - 2023, NSF GRFP Honorable Mention 2020

- Madeleine Jennings: NSF Fellowship 2019 - 2024

- Greg Vetaw: NSF Fellowship 2016 - 2021, ASU FSE Dean's Fellowship 2019 - 2021

- Sreenithy Chandran: NAIST Summer Fellowship - Summer 2019, ASU FSE Masters Opportunity in Research (MORE) - Spring 2019

- Victor Torres: Fulbright-Garcia Robles Scholarship 2020 - 2022

- Lein De Leon: Fulbright Scholarship, 2021

- Olivia Christie: GORE Sponsorship Award for undergrad research accomplishments - Spring 2020

Senior Capstone: I've also advised several AME and EEE capstones, as well as one BME capstone teams over the years.

ACADEMIC
SERVICE

Reviewing: IEEE Conference on Computer Vision and Pattern Recognition (CVPR), IEEE International Conference on Computer Vision (ICCV), European Conference on Computer Vision (ECCV), IEEE International Conf. on Computational Photography (ICCP), IEEE Trans. on Computational Imaging (TCI), IEEE Trans. on Visualization and Computer Graphics (TVCG), IEEE Trans. on Image Processing (TIP), Intl. Conf. on Pattern Recognition (ICPR), Applied Optics, Optics Letters/Express. Served on NSF grant review Panels in Spring 2018 and Spring 2020, NEH grant panel in Spring 2019.

Professional Service: Program Committee for CVPR Workshop on Computational Cameras and Displays (CCD) 2018, Social Media chair for IEEE ICCP 2018 and 2020, Finance chair for IEEE ICCP 2021, Publications chair for ACM TEI 2019, President of the IEEE Signal Processing and Communications Society - Phoenix Chapter (2018 - present), Member of the TinyML Phoenix Chapter Steering Committee (2020 - present)

University Service: Herberger Research Council (2019 - 2021), Co-Chair for Faculty Search in Expressive Robotics between AME and SEMTE (Fall 2018 - Spring 2019), AME MS and PhD Admissions committee (2018 - present), Faculty mentor for ASU Graduate College Fellowship Mentoring program (2019 - present), ASU FURI Faculty Review Committee (Spring 2020)