Suren M. Jayasuriya ***CV***

CONTACT INFORMATION

The Robotics Institute, EDSH 117
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EDUCATION

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

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 Graphics, Mixed-signal Integrated Circuits and Sensor Interfaces

EMPLOYMENT

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

Graduate Research Assistant, Cornell ECE, August 2012 - October 2016

Research Intern, NVIDIA Research, June 2016 - September 2016

Pixel Engineering Intern, Aptina Imaging, May 2014 - August 2014

Undergraduate Research Assistant, Models for Infectious Disease Agent-based Study (MIDAS), University of Pittsburgh, May-July 2012

Undergraduate Research Assistant, Complex Biological Systems Group, University of Pittsburgh, August 2010 - January 2012

HONORS AND AWARDS

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

Refereed Conference and Journal Publications:

1. H. Chen*, S. Jayasuriya*, J. Yang, J. Stephen, S. Sivaramakrishnan, A. Veeraraghavan, A. Molnar. **ASP Vision: Optically Computing the First Layer of CNNs using Angle Sensitive Pixels**, Computer Vision and Pattern Recognition (CVPR) 2016 **(oral presentation, <4% of submissions)**

2. S. Jayasuriya, A. Pediredla, S. Sivaramakrishnan, A. Molnar, A. Veeraraghavan. **Depth Fields: Extending Light Field Techniques to Time-of-Flight Imaging**, International Conference on 3D Vision (3DV) 2015 **(oral presentation)**

3. S. Jayasuriya, S. Sivaramakrishnan, E. Chuang, D. Guruaribam, A. Wang, A. Molnar. **Dual Light Field and Polarization Imaging using CMOS Diffractive Image Sensors**, Optics Letters 2015

4. S. Jayasuriya*, D. Yang*, A. 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.

5. M. Hirsch*, S. Sivaramakrishnan*, S. Jayasuriya*, A. Wang, A. Molnar, R. Raskar, G. 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**)

6. J. Chhatwal*, S. Jayasuriya*, E. Elbasha. **Changing Cycle Lengths in State-Transition Models: Challenges and Solutions**. Medical Decision Making, July 2016.

7. J. Chhatwal, S. Jayasuriya, E. 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**)

9. S. Jayasuriya, Z.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).

(* = equal authorship)

Other Publications:

M. Buckler, S. Jayasuriya, A. Sampson. **Rethinking the Camera Pipeline for Computer Vision**, Workshop on Approximate Computing across the Stack (WAX) 2017

C. Torng, M. Wang, B. Sudheendra, N. Murali, S. Jayasuriya, S. Srinath, T. Pritchard, R. Ying, and C. Batten, **Experiences using a Novel Python-Based Hardware Modeling Framework for Computer Architecture Test Chips**, 28th ACM/IEEE Symp. on High-Performance Chips (HOTCHIPS16) Student Poster Session, (Technical Abstract) Aug. 2016

S. Jayasuriya, J. Chhatwal, and E. 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.

S. Jayasuriya, S.Reich, J.P. Wheeler. **On the Inverse Erdős-Heilbronn Problem for Restricted Set Addition in Finite Groups**. (ArXiv)

Educational material: 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

Papers in review/to be submitted:

S. Jayasuriya, O. Gallo, J. Gu, J. Kautz. **Deep Learning using Energy-efficient Binary Gradient Cameras**. (in review)

M. Gupta*, A. Jauhari*, K. Kulkarni, S. Jayasuriya, A. Molnar, P. Turaga. **Compressive Light Field Reconstructions using Deep Learning**. (in review)

M. Buckler, S. Jayasuriya, A. Sampson. **Reconfiguring the Imaging Pipeline for Computer Vision**, (in review)

Teaching Experience

Instructor, ECE 4250 *Digital Signal and Image Processing* (co-taught with Amandy Nwana), Cornell University, Spring 2016

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

Teaching Assistant, ECE 2100 *Introduction to Circuits*, Cornell University, Spring 2014, **(Outstanding PhD TA Award)**

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

Teaching Assistant, Statistics 1000 *Applied Statistical Methods Honors*, University of Pittsburgh, Fall 2010

Presentations

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"*

Students Advised

Judy Stephen (BS '17), Grace Shih (BS '16), Cyrus Moradi (BS '16), Yang Li (MEng '15), Ellen Chuang (MEng '15), Debashree Guruaribam (MEng '15), Einar Veizaga (MEng '16), Jiyue Yang (BS '16), Arjun Jauhari (MEng '16), Mark Buckler (current PhD student in Cornell ECE)

Organizations and Activities

Co-Chair of the Cornell ECE Graduate Organization (2014 - 2016)

- Organized MEng Poster Session at the end of the year for 2014, 2015

President of the Cornell Electron Device Society (EDS) (2015-2016)

IEEE and ACM student member

Jazz trumpet player

Professional References

1. Alyosha Molnar, Associate Professor

   Department of Electrical and Computer Engineering, Cornell University
   Email: molnar@ece.cornell.edu

2. Ashok Veeraraghavan, Assistant Professor

   Department of Electrical and Computer Engineering, Rice University
   Email: vashok@rice.edu

3. Adrian Sampson, Assistant Professor

Department of Computer Science, Cornell University
Email: asampson@cornell.edu

4. Srinivasa Narasimhan, Professor

The Robotics Institute, Carnegie Mellon University
Email: srinivas@cs.cmu.edu

5. Christopher Batten, Associate Professor

Department of Electrical and Computer Engineering, Cornell University
Email: cbatten@cornell.edu