

DONALD G. DANSEREAU

Stanford University
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Citizenship: Canadian, Australian
Languages: English, French
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RESEARCH INTERESTS

Computational imaging, robotic vision, biologically inspired robotics and vision, medical robotics and telemedicine, light field signal processing, imaging underwater and in challenging environments

EDUCATION

Ph. D. Mechatronics Engineering, The University of Sydney, NSW, Australia, Jan 2014

Australian Centre for Field Robotics, Department of Aerospace, Mechanical and Mechatronic Engineering

Advisors: Prof. S. B. Williams, Dr. O. Pizarro

- Thesis: "Plenoptic Signal Processing for Robust Vision in Field Robotics"

M. Sc. Electrical Engineering, The University of Calgary, AB, Canada, June 2004

Department of Electrical and Computer Engineering Advisor: Prof. L. T. Bruton

- Dissertation: "4D Light Field Processing and its Application to Computer Vision"
- Governor General's Gold Medal for outstanding thesis, GPA: 4.00 / 4.00

B. Sc. Electrical Engineering with Distinction, The University of Calgary, AB, Canada, June 2001

Department of Electrical and Computer Engineering

- Minor in Computer Engineering, 16-month Engineering Internship Program, GPA: 4.00 / 4.00

HONOURS AND AWARDS

Post-Doctoral

- Small Equipment Grant, Custom Light Field Camera, QUT 2017
- Distinguished Poster, Stanford Center for Image Systems Engineering Affiliates Meeting, 2016
- Large Equipment Grant, Dynamic and Active Pixel Vision Sensor, QUT 2016
- Small Equipment Grant, LunaRoo Lunar Payload Challenge, QUT 2015
- Best paper award, Australasian Conference on Robotics and Automation (ACRA), 2014
- Endeavour Research Fellowship, 2014

Ph. D.

- Travel grant for Nautilus Navigator program, Institute for Exploration, 2011, 2013
- International Postgraduate Research Scholarship, International Postgraduate Award, 2010–2013
- Postgraduate Research Support Scheme, 2010–2013
- CVPR Doctoral Consortium / Travel Grant, 2013
- Best Postgraduate Poster in Mechatronic Engineering, Research Conversazione, 2012
- Peter Nicol Russell Postgraduate Scholarship in Mechanical Engineering, 2010

M. Sc.

- Governor General's Gold Medal – top thesis university-wide, 2004
- Natural Sciences and Engineering Research Council (NSERC) PGSA Scholarship, 2001–2003
- iCORE Graduate Student Fellowship Grant, 2001–2003
- U of C Graduate Travel Award, 2003
- U of C Fee Scholarship, 2001

B. Sc.

- Engineering Institute of Canada Student of the Year Medal, 2001
- APEGGA Gold Medal in Electrical Engineering, 2001
- Mike Ward Engineering Internship Prize and Engineering Internship Merit Award, 2000
- AFCEA Scholarship and NSERC Undergraduate Student Research Award, 2000
- Fluor Daniel Canada Inc. and CGPA Manley Frith Memorial Scholarships, 1999
- U of C Undergraduate Merit Awards, 1997, 1998, 1999
- U of C Matriculation Merit Award and Transalta Utilities Matriculation Scholarship, 1996
- CBE Career and Technology Scholarship and Alexander Rutherford Scholarship, 1996

WORK EXPERIENCE

Stanford University, Stanford Computational Imaging Lab

Postdoctoral Scholar in Electrical Engineering, Sept 2016–present

- Novel computational imaging architectures for scientific, robotic and virtual reality applications
- Wide-field-of-view light field camera design; spherical light field parameterization and algorithms
- Live streaming VR capture via novel camera architectures
- Information-based analysis of computational imaging performance

Queensland University of Technology, Australian Centre for Robotic Vision, CyPhy Lab

QUT Visiting Fellow, ACRV Research Affiliate, Sept 2016–present

Postdoctoral Research Fellow, Oct 2014–Aug 2016

- Novel cameras and algorithms for robust robotic vision
- Dealing with low light, occluders, and motion blur
- Image-based visual servoing for light field cameras
- Publishing and supporting open-source tools for light field research
- Co-supervision of two Ph. D. students, expected completions in 2019

University of Sydney, Australian Centre for Field Robotics, Marine Robotics Group

Honorary Research Fellow, Oct 2014–present

Research Associate, Lecturer, 2013–2014; Ph. D. Candidate, Teaching Assistant, 2010–2013

- Plenoptic processing for robust vision in challenging environments
- Decoding and calibrating handheld and array-based plenoptic cameras
- Novel algorithms for distractor isolation and change detection from moving platforms
- Linear methods for enhancing imagery through occluders and in murky water or low light
- Closed-form visual odometry from handheld plenoptic cameras
- Lecturer for final-year / masters-level experimental robotics class, 2014
- Teaching assistant: Tutorial and lab for experimental robotics class, 2010–2013
- Visiting Scholar at University of Victoria, BC, MDSP Group, Jul/Aug 2014

McGill University, Center for Intelligent Machines, Shared Reality Lab

Research Associate, 2009–2010

- Research into predictive coding of video for latency compensation in shared virtual environments

DFT Microsystems (now Introspect Technology)

Senior Software Specialist, 2006–2009

- Researched test methodologies for high-data-rate jitter injection, measurement, and analysis
- Full project cycle: requirements, design, implementation, documentation, maintenance
- Mentored and supervised three developers working on PC and embedded software
- Designed soft-core embedded processors and peripherals on FPGA using Verilog, Altera tools

SolVision Inc.

Vision Developer, 2005–2006

- Researched computer vision techniques for ball-grid array and flip-chip bump inspection
- Designed algorithms for shape estimation, defect detection, lighting and focus adjustment
- Developed statistical techniques for chip packaging metrology and process control

Artificial Mind and Movement (now Behaviour Interactive)

Software Developer, Simulation Team Lead, 2004–2005

- Designed and implemented physics and particle systems for multi-platform video games
- Led a small team responsible for in-game physics and animation, and associated artist's tools

University of Calgary

Research Assistant, M. Sc. Student, Teaching Assistant 2001–2004

- Researched light field processing techniques with applications in computer vision
- Constructed a camera gantry and associated software for measuring light fields
- Implemented a software suite for synthesizing and manipulating light fields
- Researched multi-dimensional linear digital filters and filter banks for performing depth filtering
- Developed nonlinear gradient-based and statistical methods for depth estimation
- Implemented a steerable directional microphone array using a multi-dimensional analog filter
- Implemented dynamic, robust 3D video watermarking techniques in Matlab and C++
- Teaching assistant for five undergraduate engineering classes

TRLabs

Research Assistant (Internship), 1999–2000

- Wireless and fibre optic channel research
- Radio channel measurements studying the impact of the channel on digital modulation techniques
- Researched predistortion and harmonic upconversion techniques for radio-on-fibre applications
- Developed real-time DSP, FPGA-based channel measurement, analysis and optimization tools

PUBLICATIONS (525 citations, h-index 12, i10-index 14)

Journal

1. R. Konrad*, **D. G. Dansereau***, A. Masood, and G. Wetzstein, "SpinVR: Towards live-streaming 3D virtual reality video," *ACM Transactions on Graphics (TOG), SIGGRAPH ASIA*, vol. 36, no. 6, Nov. 2017.
2. D. L. Bongiorno, M. Bryson, T. Bridge, **D. G. Dansereau**, and S. B. Williams, "Coregistered hyperspectral and stereo image seafloor mapping from an autonomous underwater vehicle," *Journal of Field Robotics (JFR)*, 2017.
3. D. Tsai, **D. G. Dansereau**, T. Peynot, and P. Corke, "Image-based visual servoing with light field cameras," *IEEE Robotics and Automation Letters (RA-L)*, vol. 2, no. 2, Apr. 2017.
4. **D. G. Dansereau**, S. B. Williams, and P. I. Corke, "Simple change detection from mobile light field cameras," *Computer Vision and Image Understanding (CVIU)*, vol. 145C, pp. 160–171, 2016.
5. **D. G. Dansereau**, O. Pizarro, and S. B. Williams, "Linear volumetric focus for light field cameras," *ACM Transactions on Graphics (TOG)*, Presented at SIGGRAPH 2015, vol. 34, no. 2, p. 15, Feb. 2015.
6. C. U. S. Edussooriya, **D. G. Dansereau**, L. T. Bruton, and P. Agathoklis, "Five-dimensional (5-D) depth-velocity filtering for enhancing moving objects in light field videos," *IEEE Transactions on Signal Processing (TSP)*, vol. 63, no. 8, pp. 2151–2163, Apr. 2015.

7. **D. G. Dansereau**, N. Brock, and J. R. Cooperstock, "Predicting an orchestral conductor's baton movements using machine learning," *Computer Music Journal*, vol. 37, no. 2, pp. 28–45, 2013.
8. A. Madanayake, R. Wimalagunaratne, **D. G. Dansereau**, R. J. Cintra, and L. T. Bruton, "VLSI architecture for 4-D depth filtering," *Signal, Image and Video Processing*, pp. 1–10, Jul. 2013.
9. R. Wimalagunaratne, C. Wijenayake, A. Madanayake, **D. G. Dansereau**, and L. T. Bruton, "Integral form 4-D light field filters using Xilinx FPGAs and 45 nm CMOS technology," *Multidimensional Systems and Signal Processing (MSSP)*, 2013.
10. **D. G. Dansereau** and L. T. Bruton, "A 4-D dual-fan filter bank for depth filtering in light fields," *IEEE Transactions on Signal Processing (TSP)*, vol. 55, no. 2, pp. 542–549, 2007.

Patent

1. A. Jaiprakash, D. Palmer, **D. G. Dansereau**, T. Coppin, K. Rana, J. Roberts, and R. Crawford, "Ophthalmic imaging apparatus and system," Mar. 2017, Australian Provisional Patent #2017901153.
2. M. Hafed, **D. G. Dansereau**, G. Duerden, S. Laberge, Y. Nazon, and C. Tam, "System and method for physical-layer testing of high-speed serial links in their mission environments," Aug. 2008, U.S. Patent #20080192814.

Fully Reviewed Conference

1. **D. G. Dansereau**, G. Schuster, J. Ford, and G. Wetzstein, "A wide-field-of-view monocentric light field camera," in *Computer Vision and Pattern Recognition (CVPR)*. IEEE, Jul. 2017.
2. **D. G. Dansereau**, A. Eriksson, and J. Leitner, "Richardson-lucy deblurring for moving light field cameras," *CVPR workshop on Light Fields for Computer Vision (CVPR:LF4CV)*, Jul. 2017.
3. T. Hojnik, R. Lee, **D. G. Dansereau**, and J. Leitner, "Designing a robotic hopping cube for lunar exploration," in *Australasian Conference on Robotics and Automation (ACRA)*. ARAA, Dec. 2016.
4. H. Lu, Y. Li, X. Xu, L. He, Y. Li, **D. G. Dansereau**, and S. Serikawa, "Underwater image descattering and quality assessment," in *Image Processing (ICIP)*. IEEE, Sep. 2016.
5. **D. G. Dansereau**, S. P. N. Singh, and J. Leitner, "Interactive computational imaging for deformable object analysis," in *Robotics and Automation (ICRA)*. IEEE, May 2016.
6. J. Leitner, W. Chamberlain, **D. G. Dansereau**, M. Dunbabin, M. Eich, T. Peynot, J. Roberts, R. Russell, and N. Sünderhauf, "Lunaroo: Designing a hopping lunar science payload," in *IEEE Aerospace Conference*. IEEE, Mar. 2016.
7. **D. G. Dansereau**, D. Wood, S. Montabone, and S. B. Williams, "Exploiting parallax in panoramic capture to construct light fields," in *Australasian Conference on Robotics and Automation (ACRA)*. ARAA, Dec. 2014.
8. **D. G. Dansereau**, O. Pizarro, and S. B. Williams, "Decoding, calibration and rectification for lenselet-based plenoptic cameras," in *Computer Vision and Pattern Recognition (CVPR)*. IEEE, Jun. 2013, pp. 1027–1034.
9. A. Madanayake, R. Wimalagunaratne, **D. G. Dansereau**, and L. T. Bruton, "A systolic-array architecture for first-order 4-D IIR frequency-planar digital filters," in *Intl. Symposium on Circuits and Systems (ISCAS)*. IEEE, May 2012, pp. 3069–3072.
10. — —, "Design and FPGA-implementation of 1st-order 4D IIR frequency-hyperplanar digital filters," in *Intl. Midwest Symposium on Circuits and Systems (MWSCAS)*. IEEE, Aug. 2011.
11. **D. G. Dansereau**, I. Mahon, O. Pizarro, and S. B. Williams, "Plenoptic flow: Closed-form visual odometry for light field cameras," in *Intelligent Robots and Systems (IROS)*. IEEE, Sep. 2011, pp. 4455–4462.

12. **D. G. Dansereau** and S. B. Williams, "Seabed modeling and distractor extraction for mobile AUVs using light field filtering," in *Robotics and Automation (ICRA)*. IEEE, May 2011, pp. 1634–1639.
13. **D. G. Dansereau** and L. T. Bruton, "Gradient-based depth estimation from 4D light fields," in *Intl. Symposium on Circuits and Systems (ISCAS)*, vol. 3. IEEE, May 2004, pp. 549–552.
14. — —, "A 4D frequency-planar IIR filter and its application to light field processing," in *Intl. Symposium on Circuits and Systems (ISCAS)*, vol. 4. IEEE, May 2003, pp. 476–479.
15. N. Chan, **D. G. Dansereau**, B. Davis, and B. Davies, "VHF impulse response measurements at 40 MHz," in *Proceedings of Wireless 2000*, vol. 1, Calgary, Alberta, Canada, 2000, pp. 133–145.

Full Conference, Abstract Reviewed

1. **D. G. Dansereau**, D. L. Bongiorno, O. Pizarro, and S. B. Williams, "Light field image denoising using a linear 4D frequency-hyperfan all-in-focus filter," in *Proceedings SPIE Computational Imaging XI*, Feb. 2013, p. 86570P.
2. D. L. Bongiorno, M. Bryson, **D. G. Dansereau**, S. B. Williams, and O. Pizarro, "Spectral characterization of COTS RGB cameras using a linear variable edge filter," in *Proceedings SPIE Digital Photography IX*, Feb. 2013, p. 86600N.
3. O. Pizarro, S. B. Williams, M. V. Jakuba, M. Johnson-Roberson, I. Mahon, M. Bryson, D. Steinberg, A. Friedman, **D. G. Dansereau**, N. Nourani-Vatani, D. Bongiorno, M. Bewley, A. Bender, N. Ashan, and B. Douillard, "Benthic monitoring with robotic platforms – the experience of Australia," in *Intl. Underwater Technology Symposium*. IEEE, 2013, pp. 1–10.

Extended Abstract

1. G. M. Schuster, I. P. Agurok, J. E. Ford, **D. G. Dansereau**, and G. Wetzstein, "Panoramic monocentric light field camera," in *International Optical Design Conference (IODC)*. Optical Society of America, Jul. 2017.
2. **D. G. Dansereau**, S. B. Williams, and P. I. Corke, "Closed-form change detection from moving light field cameras," in *IROS Workshop on Alternative Sensing for Robotic Perception*. IEEE, Sep. 2015.
3. J. Leitner, **D. G. Dansereau**, S. Shirazi, and P. Corke, "The need for more dynamic and active datasets," in *CVPR Workshop on The Future of Datasets in Computer Vision*. IEEE, Jun. 2015.
4. A. Mallios, O. Pizarro, J. S. Arey, S. Samanipour, B. De Mol, N. Hurtós, M. Johnson-Roberson, **D. G. Dansereau**, L. Toohey, U. Lemmin, and R. Camilli, "Synoptic identification of greenhouse gas sources and sinks in lake Léman," in *ASLO Aquatic Sciences Meeting*, Granada, Spain, Feb. 2015.

Scientific Magazine Articles

1. C. Roman, G. Inglis, I. Vaughn, C. Smart, **D. G. Dansereau**, D. Bongiorno, M. Johnson-Roberson, and M. Bryson, "New tools and methods for precision sea floor mapping," *New Frontiers in Ocean Exploration: The E/V Nautilus 2012 Field Season and Summary of Mediterranean Exploration*, *Oceanography*, vol. 26, no. 1, supplement, pp. 10–15, Mar. 2013.
2. A. Madanayake, C. Wijenayake, **D. G. Dansereau**, T. K. Gunaratne, L. T. Bruton, and S. B. Williams, "Multidimensional (MD) circuits and systems for emerging applications including cognitive radio, radio astronomy, robot vision and imaging," *Circuits and Systems Magazine*, vol. 13, no. 1, pp. 10–43, 2013.

Theses

1. **D. G. Dansereau**, "Plenoptic signal processing for robust vision in field robotics," Ph.D. dissertation, Australian Centre for Field Robotics, School of Aerospace, Mechanical and Mechatronic Engineering, The University of Sydney, Jan. 2014.

2. — —, “4D light field processing and its application to computer vision,” Master’s thesis, Electrical and Computer Engineering, University of Calgary, Dec. 2003.

Other

1. **D. G. Dansereau**, G. Schuster, J. Ford, and G. Wetzstein, “A wide-field-of-view monocentric light field camera,” in Computational Photography (ICCP). IEEE, May 2017.
2. D. Tsai, **D. G. Dansereau**, S. Martin, and P. Corke, “Mirrored light field video camera adapter,” Queensland University of Technology, Tech. Rep., Dec. 2016.
3. **D. G. Dansereau**, D. L. Bongiorno, M. Bryson, O. Pizarro, and S. B. Williams, “On the feasibility of multispectral contrast enhancement for aerial detection of sharks,” Australian Centre for Field Robotics, School of Aerospace, Mechanical and Mechatronic Engineering, The University of Sydney, Tech. Rep., Feb. 2014.
4. S. B. Williams, O. Pizarro, A. Friedman, M. Bryson, **D. G. Dansereau**, and N. N. Vatani, “Autonomous benthic monitoring – the Australian experience so far,” in Marine Imaging Workshop, Southampton, UK, 2014.
5. O. Pizarro, S. Williams, M. Johnson-Roberson, M. Bryson, A. Friedman, **D. G. Dansereau**, and D. Rao, “Developments in sampling tools and techniques – a machine-centric viewpoint,” in Geohab Workshop, Lorne, Victoria, 2014.
6. O. Pizarro, M. Jakuba, N. Flemming, D. Sakellariou, J. Henderson, M. Johnson-Roberson, I. Mahon, L. Toohey, **D. G. Dansereau**, and C. Lees, “AUV-assisted characterization of beachrock formations in Vatika Bay and Laconia and Peloponnese and Greece and their relevance to local sea level changes and bronze age settlements,” in Ocean Sciences Meeting, 2012.
7. **D. G. Dansereau**, “Improved predistortion for harmonic upconversion in radio-on-fibre systems,” TRILabs Technology Forum, 1999.

In Preparation

1. V. Varghese, **D. G. Dansereau**, M. Bryson, O. Pizarro, and S. B. Williams, “Light field image restoration for vision in scattering media,” in Robotics and Automation (ICRA, under review). IEEE, May 2018.

TEACHING AND MENTORING

- Teaching accreditations:
 - Supervisory Accreditation Level 1, QUT, Jul 2016
 - Effective Supervisory Practices, 5-week HDR supervisor training, QUT, Oct 2015
- Co-supervision of 2 Ph. D. students: Dorian Tsai and Daniel Richards, QUT, 2016–2019 (expected)
- Mentor, Stanford Raising Interest in Science and Engineering (RISE) and Summer Undergraduate Research Fellowship (SURF) for under-represented groups, Summer 2017
- Guest lecturer, Stanford EE368/CS232 Digital Image Processing, Fall 2016
- Mentor, final-year honours projects: Ashley Stewart, 2016; Rafe Denham, Thomas Baldry 2015
- Mentor, undergraduate research projects: Douglas Palmer, 2016–present (1 patent application); Tim Hojnik and Robert Lee 2016 (1 conference paper)
- Mentor, internship: Antoine Demirdjian 2015
- Lecturer, USyd MTRX5700 Experimental Robotics: prepared and delivered 1/3 of the lectures, 2014
- Tutor, USyd MTRX4700/5700 Experimental Robotics laboratory, 2010–2013
- Teaching assistant (tutor), four programming and one telecommunications classes, University of Calgary, 2001–2004

SERVICE

- Author of the open-source Light Field Toolbox for Matlab, 2013–present (3 revisions, >10,000 downloads, 2 papers, 197+36 citations); LFCamExplore light field camera design tool, 2017; and LFSynth light field renderer, 2017
- Program Chair, Volunteers: International Conference on Computational Photography (ICCP 2017)
- Program Committee: CVPR/ECCV Workshop on Light Fields for Computer Vision (LF4CV 2017, 2014), Australasian Conference on Robotics and Automation (ACRA 2016), RoboVis Science Symposium 2015, CVPR Workshop on Computational Cameras and Displays (CCD 2015)
- Guest Editor: Journal of Real-Time Image Processing special issue on Real-Time Computational Imaging Systems, 2017; Computers and Electrical Engineering Journal special issue on Artificial Intelligence and Computer Vision, 2017
- Grant Reviewer: United States National Science Foundation (NSF), 2017; Research Foundation Flanders (FWO), 2017
- Candidature / Thesis Review Committee for: University of Queensland School of Information Technology and Electrical Engineering, 2016–2017; University of Oulu Faculty of Information Technology and Electrical Engineering, 2016
- Written contributions and revision of textbook “Robotics, Vision and Control”, 2nd Edition, 2016
- Paper Reviewer: Computer Vision and Pattern Recognition (CVPR 2018), International Journal of Computer Vision (IJCV 2017), Transactions on Computational Imaging (TCI 2017, 2016), Computer Vision and Image Understanding (CVIU 2017, 2015), Transactions on Graphics (TOG 2016), International Conference on Robotics and Automation / Robotics and Automation Letters (ICRA/RAL 2015, ICRA 2011), Transactions on Pattern Analysis and Machine Intelligence (TPAMI 2015), Optics Communications (2015), Optics Express (2015), Australasian Conference on Robotics and Automation (ACRA 2015, 2010), IEEE Transactions on Image Processing (TIP 2014), IEEE Computer (2014), International Conference on Computer Vision Underwater Vision Workshop (ICCV-UV 2013), International Conference on Intelligent Robots and Systems (IROS 2013), International Journal of Robotics Research (IJRR 2012), Springer Autonomous Robots (2011), International Test Conference (2007)
- Co-organizer: Stanford Imaging and Microscopy Reading Group, 2017, 2016
- Lead student activities for: 2014 Engineers Australia Autumn School, 2014 Toormina High School Visit, 2014 National Computer Science School, 2013 Indigenous Australian Engineering Summer School, and 2012 Engineers Australia Summer School

VISITS

- Australian Centre for Field Robotics, USyd: Underwater computational imaging, Feb 2017
- Queensland University of Technology (QUT): Light field cameras and processing for robotic vision, co-supervision of 2 Ph.D. and 2 undergraduate student projects, Feb–Mar 2017
- University of California, San Diego (UCSD), Photonic Systems Integration Laboratory: Monocentric light field camera characterization, decoding and processing, Nov 2016
- University of Victoria (UVic), Multidimensional Signal Processing Group: Light field video filtering, July/Aug 2014
- University of Rhode Island (URI), Graduate School of Oceanography, Ocean Engineering Lab: Underwater light field imaging tank experiments, Feb 2013
- École Polytechnique Fédérale de Lausanne (EPFL): Sensor payload development and support for Project ELEM0, visual mapping and hydrochemistry in Lake Geneva, June 2011

INVITED TALKS AND SEMINARS

- Schloss Dagstuhl Seminar on Hyperspectral, Multispectral, and Multimodal Imaging, Oct 2017
- Berkeley Center for Computational Imaging (BCCI), “Computational Imaging for Robotic Vision”, Sep 2017
- CVPR Computational Cameras and Displays workshop invited talk, “A Wide Field-of-View Monocentric Light Field Camera”, Jul 2017
- Stanford Center for Image Systems Engineering Affiliates (SCIEN) colloquium, Jun 2017
- QUT, “Update on Computational Imaging for Robotic Vision”, Feb 2017
- UQ, “Computational Imaging for Robotic Vision”, Feb 2017
- Intel Visual and Experiential Computing Retreat, “Wide Field of View Monocentric Computational Light Field Imaging”, Dec 2016
- Stanford Graphics Cafe, “Robotic Computational Imaging”, Nov 2016
- Robotic Vision Summer School (RVSS), “Computational Imaging for Robotic Vision”, Kioloa, Apr 2016
- QUT RAS Seminar, “Computational Imaging for Robotic Vision”, March 2016
- Lytro Invited Talk, “Computational Imaging for Robotic Vision”, Aug 2015
- Stanford Computer Graphics Laboratory, “Computational Imaging for Robotic Vision”, Aug 2015
- QUT RAS Seminar, “Computational Imaging for Robotic Vision”, Jul 2015
- University of Victoria Invited Seminar, IEEE OES Victoria Chapter and UVic ECE, Aug 2014
- ANU, RoboVis ACRV Science workshop, Nov 2014
- University of Calgary, “Light Field Imaging with Applications in Underwater Robotics”, Feb 2013
- URI, “Light Field Imaging with Applications in Underwater Robotics”, Feb 2013
- WHOI, “Underwater Hyperspectral and Light Field Imaging”, Feb 2013
- RSS Invited Interactive Poster, “Light Fields for Robot Vision”, Jul 2012

FUNDING

- NSF/Intel Partnership on Visual and Experiential Computing “Wide Field of View Monocentric Computational Light Field Imaging”, (Intel #1539120, NSF #IIS-1539120), Stanford University: Program Lead, 2016–2018
- Huawei Industry Grant “Novel Imaging Capabilities using Huawei’s Dual-Camera Modules”, Stanford University: Science Lead, 2017–2018
- Australia Research Council Discovery Project DP150104440, “A Photometric Imaging Model for Mobile Underwater Camera Design”, University of Sydney: Proposal Lead and Program Consultant, 2015–2018
- Endeavour Research Fellowship, “Plenoptic Underwater Imaging”, University of Sydney, 2014

SELECTED FIELD WORK

- Western Australia 2014: Integrated Marine Observation System (IMOS) and National Environmental Research Program (NERP) benthic monitoring; AUV operations and support
- Nautilus 2013: Marine geology, biology and seamount exploration in the Greater Antilles and Montserrat; lead navigator, ROV-based operations and support, training of new navigators
- Lake Geneva 2011: Project ELEMOMO, exploration, visual mapping and hydrochemistry; operations and support for a manned submersible-mounted imaging system
- Pavlopetri 2011: Underwater archaeology, imaging and survey on a submerged town in Laconia, Greece; operations and support for AUV and diver-driven visual survey
- Nautilus 2011: Marine geology, hydrothermal vent exploration and seamount mapping in the Sea of Crete and Aeolian Arc; navigator, ROV-based mapping operations and support
- Tasmania 2010: IMOS benthic monitoring; AUV operations and support