

DONALD G. DANSEREAU

Stanford University
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Citizenship: Canadian, Australian
Languages: English, French
<http://dgd.vision>

RESEARCH INTERESTS

Computational imaging, robotic vision, machine learning, 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, Feb 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

WORK EXPERIENCE

Stanford University, Stanford Computational Imaging Lab

Postdoctoral Scholar in Electrical Engineering, Sept 2016–present

- Computational imaging for scientific, robotic and virtual reality applications
- World's first single-lens wide-field-of-view light field camera: design, prototyping, and algorithms
- Live streaming VR capture via novel camera architectures: camera design and construction
- Information-based analysis of computational imaging performance
- Machine learning for light field analysis
- Prototyping and evaluating novel optical elements using nano-scale 3D laser lithography

EPIImaging, LLC

Technical Consultant, Jun 2017–present

- Algorithmic development and feasibility studies for the company's unique light field video camera

Queensland University of Technology, Australian Centre for Robotic Vision

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

- Machine learning for predictive 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
- Developed embedded software for DFT's flagship product, a high-speed SerDes test module
- 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 including machine learning-based approaches
- Developed real-time DSP, FPGA-based channel measurement, analysis and optimization tools

HONOURS AND AWARDS

Post-Doctoral

- Distinguished Poster, Stanford Center for Image Systems Engineering (SCIEN), 2016, 2017
- Best paper award, Australasian Conference on Robotics and Automation (ACRA), 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 Conversation, 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

FUNDING

External

- NSF/Intel Partnership on Visual and Experiential Computing “Wide Field of View Monocentric Computational Light Field Imaging”, USD\$450k, (Intel #1539120, NSF #IIS-1539120), Stanford University: Program Lead, 2016–2018
- Huawei Industry Grant “Novel Imaging Capabilities using Huawei’s Dual-Camera Modules”, USD\$150k, Stanford University: Science Lead, 2017–2018
- Australia Research Council Discovery Project DP150104440, “A Photometric Imaging Model for Mobile Underwater Camera Design”, AUD\$323.5k, USyd: Proposal Lead and Program Consultant, 2015–2018
- Endeavour Research Fellowship, “Plenoptic Underwater Imaging”, AUD\$11k, USyd, 2014

Internal

- Small Equipment Grant, Custom Light Field Camera, AUD\$9.5k, QUT 2017
- Large Equipment Grant, Dynamic and Active Pixel Vision Sensor, AUD\$10k, QUT 2016
- Small Equipment Grant, LunaRoo Lunar Payload Challenge, AUD\$4.5k, QUT 2015

PUBLICATIONS (Google Scholar: 638 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. A. Stewart and **D. G. Dansereau**, "Using planar point correspondence to calibrate camera arrays for light field acquisition," in *Australasian Conference on Robotics and Automation (ACRA)*. ARAA, Dec. 2017.
2. **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.
3. **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.
4. 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.
5. 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.
6. **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.
7. 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.
8. **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.

9. **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.
10. 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.
11. —, "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.
12. **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.
13. **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.
14. **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.
15. —, "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.
16. 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.

TEACHING AND MENTORSHIP

Lecturing

- Guest lecturer, Stanford EE368/CS232 Digital Image Processing, 2016
- Co-organiser, USyd MTRX4700/5700 Experimental Robotics, 37 students, 2014
 - Prepared and delivered lectures on introductory robotics, kinematics and dynamics
 - Developed new lab assignments and final exam questions
 - Overall student rating in Unit of Study Evaluation: 4.4 / 5
- Guest lecturer, USyd MTRX4700/5700 Experimental Robotics, 2012

Teaching Accreditations

- Supervisory Accreditation Level 1, QUT, Jul 2016
- Effective Supervisory Practices, 5-week HDR supervisor training, QUT, Oct 2015

Mentorship

- Co-supervision of 3 Ph.D. students: Adam Stacey, UQ, 2018–2021 (expected); Dorian Tsai and Daniel Richards, QUT, 2016–2019 (expected)
 - 2 candidacy confirmations, journal article (RA-L, 2017), technical report (QUT, 2016)

- Stanford Raising Interest in Science and Engineering (RISE) and Summer Undergraduate Research Fellowship (SURF) for under-represented groups, Summer 2017
- Stanford EE367 Computational Imaging, 2 final-year projects, 2017
- Stanford EE368 Digital Image Processing, 5 final-year projects, 2016
- QUT Final-year honours projects: Ashley Stewart, 2016; Rafe Denham, Thomas Baldry, 2015
Conference paper, ACRA 2017
16-aperture light field video camera
- Undergraduate research project: Douglas Palmer, QUT, 2016–present
Light field fundus camera, patent application, 2017
- Undergraduate research project: Tim Hojnik and Robert Lee, hopping lunar lander, QUT, 2016
Conference paper, ACRA 2016
- Internship: Antoine Demirdjian, QUT, 2015

Teaching Assistant / Tutoring

- USyd MTRX4700/5700 Experimental Robotics laboratory, 2010–2013
Designed and oversaw assignments incorporating robotic arms and mobile platforms
Student-led group projects culminating in live demonstrations
Student rating of tutors in Unit of Study Evaluation: 4.7–5.0 / 5
- Teaching assistant, four programming and one telecommunications classes, UofC, 2001–2004

OUTREACH AND PROFESSIONAL SERVICE

Software and Tutorials

- Authored the open-source Light Field Toolbox for Matlab, 2013–present
>11,000 downloads, 3 revisions, 270-member Google+ Community
2 papers with 248 and 46 citations, respectively
- LFCamExplore light field camera design tool and tutorial, 2017
- LFSynth light field renderer, 2017

Community and Outreach

- Program Chair, volunteer program: 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
- Co-organizer of Stanford Imaging and Microscopy Reading Group, 2017, 2016
- Written contributions and revision of textbook “Robotics, Vision and Control”, 2nd Edition, 2016
- Designed and lead a robotic challenge student activity
Engineers Australia Autumn School, Toormina High School Visit, and National Computer Science School, Indigenous Australian Engineering Summer School, Engineers Australia Summer School, 2012–2014
- Founder and President of RoboMontreal amateur robotics club, 2006–2010
- Team captain, Waterloo Autonomous Robot Racing Challenge, 2007, 2008
- Electrical Engineering Student’s Council Member, 2001

Review

- Grant Reviewer:
 - American National Science Foundation Small Project (NSF), 2017
 - Belgian Research Foundation – Flanders (FWO), 2017
- Candidature / Thesis Review Committee:
 - Thesis Examiner, University of Queensland, 2018
 - University of Queensland Information Technology and Electrical Engineering, 2016–2017
 - University of Oulu Information Technology and Electrical Engineering, 2016
- Paper Reviewer:
 - Computer Vision and Pattern Recognition (CVPR), 2018
 - SIGGRAPH, 2017
 - 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 (ICRA/RA-L), 2015, 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

Professional Organisations

- Member, Institute of Electrical and Electronics Engineers (IEEE), since 2005
- Junior Engineer, Ordre des Ingénieurs du Québec (OIQ), 2004–2010
- Engineer in Training (APEGGA), 2001–2004

VISITS

- University of California, San Diego (UCSD), Photonic Systems Integration Laboratory: Monocentric light field camera characterization, decoding and processing, Feb 2017, Nov 2016
- 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 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

- Plenary Speaker at 3DTV Conference, Stockholm, Jun 2018
- IEEE SPS Summer School and ETN-FPI Training School on Light Field Data Representation, Interpretation, and Compression, Mid Sweden University in Sundsvall, May 2018
- Monash University, Intelligent Robotics Group, Jan 2018
- University of New South Wales, Dept. of Mechanical and Manufacturing Engineering, Jan 2018
- University of Sydney, Centre for Robotics and Intelligent Systems, Jan 2018
- University of Technology Sydney, Centre for Autonomous Systems, Jan 2018
- Max Planck Institut Informatik, “Computational Imaging for Robotic Vision”, Oct 2017
- Schloss Dagstuhl Seminar on Hyperspectral, Multispectral, and Multimodal Imaging, Oct 2017
- Berkeley Center for Computational Imaging, 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 colloquium, Jun 2017
- QUT Robotics and Autonomous Systems, Feb 2017
- UQ Robotics, Feb 2017
- Intel Visual and Experiential Computing Retreat, Dec 2016
- Stanford Graphics Cafe, “Robotic Computational Imaging”, Nov 2016
- Robotic Vision Summer School, Kioloa, Apr 2016
- QUT Robotics and Autonomous Systems, Mar 2016
- Lytro Invited Talk, Aug 2015
- Stanford Computer Graphics Laboratory, Aug 2015
- QUT Robotics and Autonomous Systems, 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
- URL, “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

MEDIA COVERAGE

- Engadget, “Stanford built a ‘4D’ camera for cars, robots and VR”, July 2017
- Indian Express, “Stanford scientists created new 4D camera that could boost robot vision, virtual reality”, July 2017
- Daily Mail, “Stanford researchers reveal first-of-its-kind 4D camera that will give drones and self driving cars ‘supervision’ ”, July 2017
- IEEE Future Directions, “4D digital camera for robotic vision”, July 2017
- Robotics and Automation News, “Stanford boffins invent 4D camera to improve robotic vision and augmented and virtual reality specs”, July 2017
- CGTN News, “Stanford engineers design 4D camera for robots”, July 2017
- Xinhuanet News, “Stanford engineers design 4D camera for robots”, July 2017
- Other appearances: Stanford News, UCSD News, RoboticVision.org, Futurity, Technology.org, The Merkle, Inverse, Interesting Engineering, Singularity Archive, GetVR, BT, Campus Technology, The University Network, Science News for Students, and DZone, 2017

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 ELEM0, 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 Aeolean Arc; navigator, ROV-based mapping operations and support
- Tasmania 2010: IMOS benthic monitoring; AUV operations and support