Jean-François Lalonde

Curriculum Vitae

Computer Vision and Systems Lab
Electrical and Computer Eng.
Université Laval
Québec QC G1V 0A6
☎ *(418) 656-2131 #2659*
✉ *jflalonde@gel.ulaval.ca*
www.jflalonde.ca

EDUCATION

2011 **Ph.D. in Robotics**, Carnegie Mellon University.
Thesis: Understanding and Recreating Visual Appearance Under Natural Illumination
Microsoft Research Fellow, School of Computer Science Distinguished Dissertation Award

2006 **M.S. in Robotics**, Carnegie Mellon University.
Thesis: Data Structure for Efficient Dynamic Processing in 3-D

2004 **B.S. in Computer Engineering (hons.)**, Université Laval.

PROFESSIONAL APPOINTMENTS

2018–... **Associate Professor**, Electrical and Computer Engineering, Université Laval, Québec, Canada.
Affiliated to the NSERC/Creaform Industrial Research Chair on 3D Scanning
Member of the Research Center for Robotics, Vision and Machine Intelligence
Member of the Big Data Research Center

2013–2018 **Assistant Professor**, Electrical and Computer Engineering, Université Laval, Québec, Canada.

2018–... **Technical advisory board member**, Geomagical Labs, inc., Mountain View, USA.

2017–... **Technical advisor**, Arcane Technologies, Québec, Canada.

2016–2020 **Associate Researcher**, Institut National d'Optique, Québec, Canada.

2018–2019 **Research consultant**, Facebook, inc., Menlo Park, USA.

2012–2013 **Post-doctoral Associate**, Disney Research, Pittsburgh, USA.

PUBLICATIONS

Refereed Journal Articles

[A1] Yannick Hold-Geoffroy, Paulo F. U. Gotardo, and Jean-François Lalonde. "Deep photometric stereo on a sunny day". In: *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)* (2020).

[A2] Mojtaba Parsaee, Claude M. Demers, Marc Hébert, Jean-François Lalonde, and André Potvin. "Biophilic, photobiological and energy-efficient design framework of adaptive building façades for northern canada". In: *Indoor and Built Environment* (Feb. 2020).

[A3] Geoffroi Côté, Jean-François Lalonde, and Simon Thibault. "Extrapolating from lens design databases using deep learning". In: *Optics Express* 27.20 (2019).

[A4] Félix Labrie-Larrivée, Denis Laurendeau, and Jean-François Lalonde. "Depth texture synthesis for high resolution reconstruction of large scenes". In: *Machine Vision and Applications* 30.4 (2019).

[A5] Mojtaba Parsaee, Claude M.H. Demers, Marc Hébert, Jean-François Lalonde, and André Potvin. "A photobiological approach to biophilic design in extreme climates". In: *Building and Environment* 154 (May 2019), pp. 211–226.

[A6] Ethan Tseng, Felix Yu, Yuting Yang, Fahim Mannan, Karl St. Arnaud, Derek Nowrouzezahrai, Jean-François Lalonde, and Felix Heide. "Hyperparameter optimization in black-box image processing using differentiable proxies". In: *ACM Transactions on Graphics (SIGGRAPH)* (2019).

[A7] Dan A. Calian, Jean-François Lalonde, Paulo F.U. Gotardo, Tomas Simon, Iain Matthews, and Kenny Mitchell. "From faces to outdoor light probes". In: *Computer Graphics Forum (Eurographics 2018)* 37.2 (2018).

[A8] Jinsong Zhang, Rodrigo Verschae, Shohei Nobuhara, and Jean-François Lalonde. "Deep photovoltaic nowcasting". In: *Solar Energy* 176 (2018), pp. 267–276.

[A9] Marc-André Gardner, Kalyan Sunkavalli, Ersin Yumer, Xiaohui Shen, Emiliano Gambaretto, Christian Gagné, and Jean-François Lalonde. "Learning to predict indoor illumination from a single image". In: *ACM Transactions on Graphics (SIGGRAPH Asia)* 9.4 (2017).

[A10] Mathieu Garon and Jean-François Lalonde. "Deep 6-DOF tracking". In: *IEEE Transactions on Computer Graphics and Visualization* 23.11 (2017).

[A11] Minghui Tan, Jean-François Lalonde, Lavanya Sharan, Holly Rushmeier, and Carol O'Sullivan. "The perception of lighting inconsistencies in composite outdoor scenes". In: *ACM Transactions on Applied Perception* 12.4 (Aug. 2015).

[A12] Jean-François Lalonde, Alexei A Efros, and Srinivasa G Narasimhan. "Estimating the natural illumination conditions from a single outdoor image". In: *International Journal of Computer Vision* 98.2 (June 2012), pp. 123–145.

[A13] Jean-François Lalonde, Srinivasa G Narasimhan, and Alexei A Efros. "What do the sun and the sky tell us about the camera?" In: *International Journal of Computer Vision* 88.1 (May 2010), pp. 24–51.

[A14] Ranjith Unnikrishnan, Jean-François Lalonde, Nicolas Vandapel, and Martial Hebert. "Scale selection for geometric fitting in noisy point clouds". In: *International Journal of Computational Geometry & Applications* 20.5 (Oct. 2010), pp. 543–575.

[A15] Jean-François Lalonde, Alexei A Efros, and Srinivasa G Narasimhan. "Webcam Clip Art: appearance and illuminant transfer from time-lapse sequences". In: *ACM Transactions on Graphics (SIGGRAPH Asia 2009)* 28.5 (Dec. 2009), 131:1–131:10.

[A16] Minh Hoai Nguyen, Jean-François Lalonde, Alexei A Efros, and Fernando de la Torre. "Image-based shaving". In: *Computer Graphics Forum Journal (Eurographics 2008)* 27.2 (2008), pp. 627–635.

[A17] Jean-François Lalonde, Derek Hoiem, Alexei A Efros, Carsten Rother, John Winn, and Antonio Criminisi. "Photo Clip Art". In: *ACM Transactions on Graphics (SIGGRAPH 2007)* 26.3 (Aug. 2007).

[A18] Jean-François Lalonde, Nicolas Vandapel, and Martial Hebert. "Data structures for efficient dynamic processing in 3-D". In: *International Journal of Robotics Research* 26.8 (Aug. 2007).

[A19] Jean-François Lalonde, Nicolas Vandapel, Daniel F Huber, and Martial Hebert. "Natural terrain classification using three-dimensional ladar data for ground robot mobility". In: *Journal of Field Robotics* 23.10 (Oct. 2006), pp. 839–861.

Refereed Conference Papers

[C1] Thomas Nestmeyer, Iain Matthews, Jean-François Lalonde, and Andreas Lehrmann. "Learning physics-guided face relighting under directional light". In: *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*. 2020.

[C2] Geoffroi Côté, Jean-François Lalonde, and Simon Thibault. "Introducing a dynamic deep neural network to infer lens design starting points". In: *Current Developments in Lens Design and Optical Engineering XX*. 2019.

[C3] Marc-André Gardner, Yannick Hold-Geoffroy, Kalyan Sunkavalli, Christian Gagné, and Jean-François Lalonde. "Deep parametric indoor lighting estimation". In: *IEEE International Conference on Computer Vision (ICCV)*. 2019.

[C4] Mathieu Garon, Kalyan Sunkavalli, Nathan Carr, Sunil Hadap, and Jean-François Lalonde. "Fast spatially-varying indoor lighting estimation". In: *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*. 2019.

[C5] Shirsendu Halder, Jean-François Lalonde, and Raoul de Charette. "Physics-based rain rendering for studying and improving robustness to rain". In: *IEEE International Conference on Computer Vision (ICCV)*. 2019.

[C6] Yannick Hold-Geoffroy, Akshaya Athawale, and Jean-François Lalonde. "Deep sky modeling for single image outdoor lighting estimation". In: *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*. 2019.

[C7] Jinsong Zhang, Kalyan Sunkavalli, Yannick Hold-Geoffroy, Sunil Hadap, Jonathan Eisenman, and Jean-François Lalonde. "All-weather deep outdoor lighting estimation". In: *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*. 2019.

[C8] Sławomir Bąk, Peter Carr, and Jean-François Lalonde. "Domain adaptation through synthesis for unsupervised person re-identification". In: *European Conference on Computer Vision (ECCV)*. 2018.

[C9] Mathieu Garon, Denis Laurendeau, and Jean-François Lalonde. "A framework for evaluating 6-DOF object trackers". In: *European Conference on Computer Vision (ECCV)*. 2018.

[C10] Yannick Hold-Geoffroy, Kalyan Sunkavalli, J. Eisenmann, Matthew Fisher, Emiliano Gambaretto, Sunil Hadap, and Jean-François Lalonde. "A perceptual measure for deep single image camera calibration". In: *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR)*. 2018.

[C11] Jean-François Lalonde. "Deep learning for augmented reality". In: *Workshop on Information Optics*. 2018.

[C12] Henrique Weber, Donald Prévost, and Jean-François Lalonde. "Learning to estimate indoor lighting from 3D objects". In: *International Conference on 3D Vision (3DV)*. 2018.

[C13] Mathieu Garon and Jean-François Lalonde. "Deep 6-DOF tracking". In: *International Symposium on Mixed and Augmented Reality (ISMAR)*. 2017.

[C14] Yannick Hold-Geoffroy, Kalyan Sunkavalli, Sunil Hadap, Emiliano Gambaretto, and Jean-François Lalonde. "Deep outdoor illumination estimation". In: *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR)*. 2017.

[C15] Jinsong Zhang and Jean-François Lalonde. "Learning high dynamic range from outdoor panoramas". In: *IEEE International Conference on Computer Vision (ICCV)*. 2017.

[C16] Maryam Ziaeefard, Jean-François Lalonde, and Robert Bergevin. "Deep uncertainty interpretation in dyadic human activity prediction". In: *IEEE International Conference on Machine Learning and Applications*. 2017.

[C17] Mathieu Garon, Pierre-Olivier Boulet, Jean-Philippe Doiron, Luc Beaulieu, and Jean-François Lalonde. "Real-time high resolution 3D data on the HoloLens". In: *International Symposium on Mixed and Augmented Reality (ISMAR)*. 2016.

[C18] Félix Labrie-Larrivée, Denis Laurendeau, and Jean-François Lalonde. "Depth texture synthesis for realistic architectural modeling". In: *Computer and Robot Vision Conference (CRV)*. 2016.

[C19] Miguel Granados, Tunç Ozan Aydın, Jose Rafael Tena, Jean-François Lalonde, and Christian Theobalt. "Contrast use metrics for tone mapping images". In: *IEEE International Conference on Computational Photography (ICCP)*. 2015.

[C20] Miguel Granados, Tunç Ozan Aydın, Jose Rafael Tena, Jean-François Lalonde, and Christian Theobalt. "HDR image noise calibration for denoising tone mapped images". In: *European Conference on Visual Media and Production (CVMP)*. 2015.

[C21] Yannick Hold-Geoffroy, Jinsong Zhang, Paulo F U Gotardo, and Jean-François Lalonde. "x-hour outdoor photometric stereo". In: *International Conference on 3D Vision (3DV)*. 2015.

[C22] Yannick Hold-Geoffroy, Jinsong Zhang, Paulo F U Gotardo, and Jean-François Lalonde. "What is a good day for outdoor photometric stereo?" In: *IEEE International Conference on Computational Photography (ICCP)*. 2015.

[C23] Sébastien Michaud, Jean-François Lalonde, and Philippe Giguère. "Towards characterizing the behavior of LiDARs in snowy conditions". In: *IROS Workshop on Planning, Perception and Navigation for Intelligent Vehicles*. 2015.

[C24] Minghui Tan, Jean-François Lalonde, Lavanya Sharan, Holly Rushmeier, and Carol O'Sullivan. "The perception of lighting inconsistencies in composite outdoor scenes". In: *ACM Symposium on Applied Perception*. 2015.

[C25] Jean-François Lalonde and Iain Matthews. "Lighting estimation in outdoor image collections". In: *International Conference on 3D Vision (3DV)*. 2014.

[C26] Jean-François Lalonde, Alexei A Efros, and Srinivasa G Narasimhan. "Detecting ground shadows in outdoor consumer photographs". In: *European Conference on Computer Vision (ECCV)*. 2010.

[C27] Jean-François Lalonde, Alexei A Efros, and Srinivasa G Narasimhan. "Estimating natural illumination from a single outdoor image". In: *IEEE International Conference on Computer Vision (ICCV)*. 2009.

[C28] Jean-François Lalonde, Srinivasa G Narasimhan, and Alexei A Efros. "What does the sky tell us about the camera?" In: *European Conference on Computer Vision (ECCV)*. 2008.

[C29] Nicholas Heckman, Jean-François Lalonde, Nicolas Vandapel, and Martial Hebert. "Potential negative obstacle detection by occlusion labeling". In: *IEEE/RSJ International Conference on Intelligent Robots and Systems*. 2007.

[C30] Jean-François Lalonde and Alexei A Efros. "Using color compatibility for assessing image realism". In: *IEEE International Conference on Computer Vision (ICCV)*. 2007.

[C31] Jean-François Lalonde, Christopher Bartley, and Illah Nourbakhsh. "Mobile robot programming in education". In: *IEEE International Conference on Robotics and Automation (ICRA)*. May 2006.

[C32] Ranjith Unnikrishnan, Jean-François Lalonde, Nicolas Vandapel, and Martial Hebert. "Scale selection for the analysis of point-sampled curves". In: 2006.

[C33] Jean-François Lalonde, Ranjith Unnikrishnan, Nicolas Vandapel, and Martial Hebert. "Scale selection for classification of point-sampled 3D surfaces". In: *International Conference on 3D Digital Imaging and Modeling (3DIM)*. 2005.

[C34] Jean-François Lalonde, Nicolas Vandapel, and Martial Hebert. "Data structure for efficient processing in 3-D". In: *Robotics: Science and Systems I*. MIT Press, June 2005.

[C35] Guy Godin, Jean-François Lalonde, and Louis Borgeat. "Dual-resolution stereoscopic display with scene-adaptive fovea boundaries". In: *International Immersive Projection Technology Workshop*. 2004.

[C36] Guy Godin, Jean-François Lalonde, and Louis Borgeat. "Projector-based dual-resolution stereoscopic display". In: *IEEE Virtual Reality*. 2004.

[C37] Jerome Vignola, Jean-François Lalonde, and Robert Bergevin. "Progressive human skeleton fitting". In: *Conference on Vision Interface*. 2003.

Refereed Symposia Posters

[S1] Yannick Hold-Geoffroy, Kalyan Sunkavalli, J. Eisenmann, Matthew Fisher, Emiliano Gambaretto, Sunil Hadap, and Jean-François Lalonde. "A perceptual measure for deep single image camera calibration". In: *IEEE International Conference on Computational Photography (ICCP)*. 2018.

[S2] Yannick Hold-Geoffroy, Jinsong Zhang, Paulo F U Gotardo, and Jean-François Lalonde. "x-hour outdoor photometric stereo". In: *International Conference on Computational Photography*. 2016.

[S3] Jean-François Lalonde, Alexei A Efros, and Srinivasa G Narasimhan. "Estimating the natural illumination conditions from a single outdoor image". In: *International Conference on Computational Photography*. 2011.

Patents

[P1] Iain Matthews and Jean-François Lalonde. "Systems and methods for estimating sky light probes for outdoor images". Patent 9,860,453 B2 (US). Jan. 2018.

[P2] Jean-François Lalonde and Iain Matthews. "Predicting a light probe from an outdoor image". Patent 9,639,773 B2 (US). May 2017.

[P3] Miguel Granados, Rafael Tena, Tunç O. Aydin, Jean-François Lalonde, Christian Theobalt, and Iain Matthews. "High dynamic range and tone mapping imaging techniques". Patent 9,275,445 B2 (US). Mar. 2016.

[P4] Andrew N. Stein and Jean-François Lalonde. "Oriented, spatio-spectral illumination constraints for use in an image process". Patent 8,934,735 B2 (US). Jan. 2015.

[P5] Jean-François Lalonde. "Spatially-varying log-chromaticity normals for use in an image process". Patent 8,842,910 B2 (US). Sept. 2014.

[P6] Jean-François Lalonde. "Weighted entropy minimization for optimizing a log-chromaticity normal for use in an image process". Patent 8,811,732 B2 (US). Aug. 2014.

[P7] Jean-François Lalonde, Patrick Buehler, Bruce Maxwell, Casey Smith, Andrew Stein, and Richard Friedhoff. "Log-chromaticity clustering pipeline for use in an image process". Patent 8,849,018 B2 (US). Sept. 2014.

Patent Applications

[PA1] Marc-André Gardner, Yannick Hold-Geoffroy, Kalyan Sunkavalli, Christian Gagné, and Jean-François Lalonde. "Dynamically estimating light-source-specific parameters for digital images using a neural network". Patent Application P8931-US / 20030.273 (US). 2019.

[PA2] Mathieu Garon, Kalyan Sunkavalli, Sunil Hadap, Nathan Carr, and Jean-François Lalonde. "Dynamically estimating lighting parameters for positions within augmented-reality scenes based on global and local features". Patent Application P8919-US / 20030.269 (US). 2019.

[PA3] Jinsong Zhang, Kalyan Sunkavalli, Yannick Hold-Geoffroy, Sunil Hadap, Jonathan Eisenmann, and Jean-François Lalonde. "Learning from estimated high-dynamic range all weather lighting parameters". Patent Application P8930-US / 328451 (US). 2019.

HONORS AND RECOGNITIONS

2019 Highest-scoring Reviewer, NeurIPS 2019

2018 Best Paper Award, WIO 2018

2014–19 Outstanding Reviewer Award: CVPR 2014, 2015, 2017, 2018, 2019

2017 Excellence in teaching award, category "digital educational resource", Université Laval

2017 Best Professor Award, IEEE student branch

2015–17 Star Professor Award, School of Science and Engineering

2015 Best Paper (Runner Up) Award, 3DV 2015

2011 CMU School of Computer Science Distinguished Dissertation Award

2009–2011 Microsoft Research Ph.D. Fellowship

2006–2009 Ph.D. Scholarship, Fonds de Recherche sur la Nature et les Technologies (FQRNT)

2004–2006 M.S. Scholarship, Fonds de Recherche sur la Nature et les Technologies (FQRNT)

FUNDING

2019–2021 **NSERC Collaborative Research and Development Grant CRDPJ 537961 - 18**, "Deep style transfer for 3D meshes", with Gearbox.
$104,000 / 2 years

2019–2020 **NSERC ENGAGE EGP2 544431-19**, "Wide-angle Vision and Sensing using Artificial Intelligence, Machine Learning and Neural Networks—phase 2", with Immervision.
$24,522 / 6 months

2018–2019 **NSERC ENGAGE EGP 531221-18**, "Wide-angle Vision and Sensing using Artificial Intelligence, Machine Learning and Neural Networks", with Immervision.
$24,973 / 6 months

2018–2020 **FRQ-NT Samuel-de-Champlain**, "Vision par Ordinateur en Conditions Difficiles", PI, Co-PI: Raoul de Charrette, INRIA.
$30,000 / 2 years

2018–2020 **NSERC Collaborative Research and Development Grant CRDPJ 524235-18**, "Inferring 3D Information from a Monocular Camera", PI, in collaboration with Thalès Canada inc.
$52,000 / 2 years

2018–2021 **FRQ-NT Team Grant 2019-PR-254912**, "Visual Place Recognition for Robots Operating in Changing Environments", Co-PI (PI: Philippe Giguère (computer science), Co-PIs: Brahim Chaib-draa (computer science), David Meger (McGill, computer science)).
$162,000 / 3 years

2017–2021 **Canada First Research Excellence Fund (Sentinel North)**, "Optimisation of Biophilia in Extreme Climates through Architecture", Co-PI (PIs: Claude Demers (architecture) and Marc Hébert (medicine)).
$625,640 / 4 years

2017–2018 **NSERC ENGAGE Plus EGP2 522789-18**, "Surface Reflectance Acquisition for Finished Materials—phase 2", with Arcane Technologies.
$21,740 / 6 months

2017–2018 **NSERC ENGAGE EGP 505674-16**, "Surface Reflectance Acquisition for Finished Materials", with Arcane Technologies.
$24,995 / 6 months

2017 **Research contract**, "High Resolution, High Dynamic Range Panorama Capture", Adobe Systems.
$33,500 / 6 months

2016–2020 **Unrestricted gift for research activities**, Adobe Systems.
$130,000, unlimited duration

2016–2019 **Research grant**, "Automated method for replacing real-world objects present in a monocular video with a virtual object", Institut National d'Optique.
$60,000 / 4 years

2016 **Research grant**, "Change detection with autonomous mobile robots", Umanx.
$9,000 / 4 months

2016 **Educational innovation grant**, "Educational Tool for Teaching the Internal Structure of Computers", Université Laval.
$4,601.25 / 6 months

2016 **MITACS Accelerate IT06791**, "Improving Interactivity in Augmented Reality for Video Games Applications", with Frima Studio.
$15,000 / 4 months

2016 **NSERC ENGAGE EGP 491144-15**, "Precise and Robust Extraction of Physical Measurements by Processing Images Acquired by a Mobile Platform", PI: Sylvie Daniel (U. Laval), with Bulldozer inc.
$24,334 / 6 months

2015–2016 **NSERC ENGAGE EGP 485663-15**, "Monocular Face Reconstruction for Virtual Try-on Applications", with Mentum.
$24,994 / 6 months

2015–2017 **FRQ-NT New Researcher Grant 2016NC189939**, "Outdoor Photometric Stereo Under Unknown Illumination".
$40,000 / 2 years, with an additional $25,829 for equipment

2014–2020 **NSERC Discovery Grant RGPIN-2014-05314**, "Bringing Images to Light".
$222,000 / 6 years

TALKS

Invited talks

11/2019 "Combining Physics and Learning for Outdoor Lighting Estimation", Physics-based meets deep learning workshop, IEEE International Conference on Computer Vision, Seoul, South Korea

04/2019 "Deep Learning for Understanding the Image Formation Process", ARTIFACTZ Workshop, Nice, France

07/2018 "Deep Learning and Augmented Reality", Workshop on Information Optics 2018, Québec, Canada

11/2017 "Learning to Predict Illumination from a Single Image", NSERC CREATE Data Analytics & Visualization Bootcamp 2017, York University, Toronto, Canada

10/2017 "Deep Learning for Computer Graphics: Learning to Estimate Lighting from Photographs", Re-Work Deep Learning Summit Montreal, Montreal, Canada

06/2015 "Richer Models for Outdoor Lighting", Computer and Robot Vision Conference, Halifax, Canada

11/2012 "Understanding Illumination in Natural Images", SCS Distinguished Dissertation Award Lecture, Pittsburgh, USA

Tutorials

09/2016 “Computational Photography Tutorial”, International Conference on Image Processing, Phoenix, USA

09/2015 “Computational Photography Tutorial”, International Conference on Image Processing, Quebec City, Canada

Research seminar talks

05/2019 “Deep Learning for Understanding the Image Formation Process”, NRC, Ottawa, Canada

01/2019 “Deep learning for depth estimation”, Leddartech, Québec, Canada

12/2018 “Learning to Estimate Lighting from a Single Image”, KAIST, Daejeon, Korea

10/2018 “Learning to Estimate Lighting from a Single Image”, INRIA, Paris, France

05/2018 “AR and AI”, INRS Eau-Terre-Environnement, Québec, Canada

05/2018 “From Faces to Outdoor Light Probes”, REPARTI Seminar, U. Laval

12/2017 “Deep Learning and Panoramas”, Immervision, Montreal, Canada

11/2017 “Learning to Estimate Lighting From Photographs”, Disney Research, Zürich, Switzerland

06/2017 “Object Detection and Deep Learning”, Umanx, Québec, Canada

05/2017 “Deep Learning and 3D”, Creaform Tech Lunches, Québec, Canada

05/2017 “Learning to Predict Illumination from a Single Image”, Montreal Institute for Learning Algorithms, Montreal, Canada

05/2017 “Opportunistic Lighting and Augmented Reality”, Thalès, Québec, Canada

11/2016 “Special Effects in Photographs”, Kyoto University, Kyoto, Japan

11/2016 “Modeling Outdoor Illumination”, Kyoto University, Kyoto, Japan

11/2015 “Data-driven Modeling of Outdoor Illumination”, University College, London, UK

10/2015 “Data-driven Modeling of Outdoor Illumination”, McGill University, Montreal, Canada

10/2015 “Computational Photography Overview”, Algolux, Montreal, Canada

03/2015 “Richer Models for Outdoor Lighting Synthesis and Understanding”, Uber Advanced Technology Center, Pittsburgh, USA

05/2014 “Special Effects in your Photos”, REPARTI workshop, Québec, Canada

03/2014 “Daylight and Material Estimation from Photo Collections”, REPARTI Seminar, U. Laval

11/2013 “Point-and-shoot Sky Probes”, REPARTI Seminar, U. Laval

09/2012 “Understanding Illumination in Natural Images”, National Robotics Engineering Consortium, Pittsburgh, USA

04/2012 “Understanding and Recreating Visual Appearance in a Single Outdoor Photograph”, Disney Research Pittsburgh, USA

01/2011 “Understanding and Recreating Visual Appearance Under Natural Illumination”, Carnegie Mellon University

10/2010 “Estimating Illumination Conditions from a Single Outdoor Image”, U. Laval

08/2010 “Understanding and Recreating Visual Appearance under Natural Illumination”, Tandent Vision Science, Pittsburgh, USA

11/2008 “What Does the Sky Tell Us About the Camera?”, VASC Seminar, Carnegie Mellon University

06/2008 “Capturing the Illumination of a Scene: 2 Data-driven Approaches”, U. Laval

Scientific conference talks

11/2015 “HDR Image Noise Estimation for Denoising Tone Mapped Images”, Conference on Visual Media and Production, London, UK

04/2015 “Contrast Use Metrics for Tone Mapping Images”, International Conference on Computational Photography, Houston, TX, USA

05/2010 “Webcam Clip Art”, FMX, Stuttgart, Germany

12/2009 “Webcam Clip Art”, ACM SIGGRAPH Asia, Yokohama, Japan

10/2009 “Estimating Natural Illumination from a Single Outdoor Image”, ICCV, Kyoto, Japan

08/2007 “Photo Clip Art”, ACM SIGGRAPH, San Diego, CA, USA

08/2006 “Mobile Robot Programming in Education”, ICRA, Orlando, FL, USA

06/2005 “Data Structure for Efficient Processing in 3-D”, RSS, Boston, MA, USA

06/2005 “Scale Selection for Classification of Point-sampled 3-D Surfaces”, 3DIM, Ottawa, Canada

General public presentations

10/2019 “Augmenter la réalité grâce à l’intelligence artificielle”, Rendez-vous numériques, ITIS, Université Laval, Québec, Canada

06/2019 “Comment Donner une Bonne Présentation”, Séminaire, Université Laval, Québec, Canada

04/2018 “Intelligence Artificielle et Réalité Augmentée”, Rendez-vous IA Québec, Québec, Canada

04/2018 “Le Futur de la Réalité Augmentée: Suivi d’Objets et Estimation d’Éclairage Automatiques”, Réalité Augmentée Québec (RAQ), Québec, Canada

04/2018 “Les Promesses de l’Apprentissage Profond en Réalité Mixte et Augmentée”, Web à Québec (WAQ), Québec, Canada

04/2018 “Du Rêve à la Réalité... Augmentée!”, Tempête des Sciences, Cégep Garneau, Québec, Canada

11/2017 “Des effets spéciaux dans vos photos”, IEEE-Ordinateur/Section IEEE Québec, Québec

11/2017 “L’intelligence artificielle”, Semaine des réseaux sociaux, Québec

10/2017 “Enseigner aux ordinateurs à comprendre l’éclairage dans une photo”, Forum de l’Alliance culture numérique, Musée National des Beaux-Arts du Québec, Québec

08/2017 “Programme d’appui à l’innovation pédagogique”, Faculté des Sciences et de Génie, Université Laval

04/2016 “Éclairage d’objets virtuels 3D : approches et perspectives”, Journées Aux Frontières du Numérique, ITIS, Québec, Canada

11/2015 “Repousser les Limites de la Création 3D: Des Effets Spéciaux dans vos Photos”, École de Design, Québec, Canada

10/2015 “Repousser les Limites de la Création 3D: Lumières, Météo, et Objets Virtuels”, Radio interview, CKRL radio station, Québec, Canada

10/2015 “Repousser les Limites de la Création 3D: Lumières, Météo, et Objets Virtuels”, ITIS, Québec, Canada

08/2014 “An Account of Life as a Young Faculty Member”, Université Laval

TEACHING EXPERIENCE

Université Laval

2014–... Computational photography

2015–... Introduction to computer architecture

Carnegie Mellon University

2008–2012 Computational photography (guest lecturer, 4 lectures)

2010 Computer vision (guest lecturer)

2008–2010 Computer graphics (guest lecturer)

Teaching assistantships

2007 Learning-based methods in vision, Carnegie Mellon University

2003–2004 C++ programming on Linux, Université Laval *Best Teaching Assistant Award*

SERVICE

2019 Local and Finance Chair, 3DV 2019

2019 Area Chair, ICCV 2019

2018–19 Technical Committee Member, ACM SIGGRAPH 2018 and 2019

2018 Technical Advisor, Vocabulaire français de l'intelligence artificielle, Office Québécois de la Langue Française

2018–2019 Publication Chair, IEEE International Conf. on Computational Photography 2018–2019

2017–2019 Committee member (05B), "M.S. scholarship program", FRQ-NT

2018 Local Arrangement Chair, Canadian Conf. on Electrical and Computer Eng. 2018

2017 Committee president (NC04), "Établissement de nouveaux chercheurs", FRQ-NT

2016–2018 Area Chair: International Conference on 3D Vision (2016–2017), Pacific Conference on Computer Graphics and Applications (2017)

2015–2016 Ambassador to the city of Quebec, project `1000raisons.quebec`. Program launched by Quebec's Work Minister, Mr. Sam Hamad, with the goal of attracting international talent to Quebec City.

2015 Program committee member, Technical Briefs and Posters, SIGGRAPH Asia 2015

04/2012 Panelist, Quality of Life Technology Industry Panel, Carnegie Mellon University

2008–... Journal reviewer: IEEE TPAMI (2011–2014), IJCV (2010–2013), ACM TOG (2008–2017), IEEE TIP (2012–2014), JVBR (2009–2010), CGF (2008–2014), CVIU (2012–14)

2010–... Program committee reviewer: CVPR (2011–2017), ECCV (2010–2016), ICCV (2011–2017), ICCP (2014–2017)

2008–... External reviewer: RSS (2011), CVPR (2008–2010), ICPR (2010), ICCP (2008), ICRA (2007–2012), ICIP (2012–2014)

2009–2010 Graduate admissions committee, Robotics Institute, Carnegie Mellon University

MEDIA COVERAGE

03/05/2020 "Clearing Up the Picture", Communications of the ACM

04/05/2018 "Intelligence artificielle: un nouveau vocabulaire de 85 mots en français", Le Soleil

11/09/2017 "Ces passionnés de l'enseignement", Fil des Événements

10/31/2017 "The revolution will be unsupervised and other takeaways from the RE•WORK Deep Learning Summit", CBC Digital Labs

10/09/2015 "Québec lance une campagne pour attirer des travailleurs", Radio-Canada

10/09/2015 "70 000 emplois à pourvoir d'ici 3 ans à Québec", Journal de Montréal

10/09/2015 "Campagne de promotion pour inciter les talents à revenir à Québec", Le Soleil

10/08/2015 "Du 3D plus vraisemblable que jamais", Fil des Événements

10/05/2015 Interview at CKRL, Quebec radio station

09/2015 "La 3D presque à portée de main", Le magazine Contact

05/30/2015 "Un projet pour rapatrier les talents québécois de l'étranger", Le Soleil

02/19/2015 "Pousser les limites de la création 3D", Fil des Événements

01/31/2015 "Le Ciel de Québec inspire Disney", Journal de Québec

01/26/2015 "Disney Research: La magie de l'image", Impact Campus

04/15/2008 "Photo Clip Art", CGWorld (Japan)

09/19/2007 "Instant makeup: perfect your holiday snaps", The Independent (UK)

08/08/2007 "Photo tool could fix bad images", BBC News (UK)

07/11/2007 “Researchers try Google approach to understanding photos”, News.com (USA)

07/11/2007 “Researchers try Google photo tactic”, USAToday (USA)

07/19/2007 “Le photomontage pour les nuls”, News.fr (France)

07/15/2007 C’t—Magazin für Computertechnik (Germany)

SUPERVISION

Current Ph.D. Students

2019–... **Mohammad Reza Karimi Dastjerdi**.

2019–... **Arman Afrayisabi**, co-supervised with Christian Gagné (ECE).

2019–... **Geoffroi Côté**, *Alexander Graham Bell Canada Graduate Scholarship, Sentinelle North Ph.D. Fellowship*, co-supervised with Simon Thibault (physics).

2019–... **Maxime Tremblay**, co-supervised with André Zaccarin.

2017–... **Mojtaba Parsaee**, *Sentinel North Ph.D. scholarship*, co-supervised with Claude Demers (architecture) and Marc Hébert (medicine).

2017–... **Mathieu Garon**, co-supervised with Denis Laurendeau (ECE).

2016–... **Jinsong Zhang**.
Thesis: “Data-driven HDR Illumination from Outdoor Images”

2014–... **Marc-André Gardner**, *Alexander Graham Bell Canada Graduate Scholarship*, co-supervised with Christian Gagné (ECE).
Thesis: “Semantics in Deep Neural Networks”

Current M.S. Students

2020–... **Luca Blanchout**, in collaboration with Claude Demers (architecture) and Marc Hébert (medicine)).

2020–... **Yohan Poirier-Ginter**, in collaboration with Gearbox.

2019–... **Antoine Dufour**, in collaboration with Gearbox.

2019–... **Étienne Dubeau**, in collaboration with Thales.

2018–... **Tesnim Hadhri**, in collaboration with Thales.

2018–... **Louis-Philippe Asselin**, co-supervised with Denis Laurendeau (ECE), in collaboration with Creaform.

Current Post-Doctoral Researchers

2017–2020 **Filippo Ferrario**, *Sentinel North Post-doc scholarship*, co-supervised with Philippe Archambault (biology), Philippe Giguère (CS), Sylvie Daniel (geomatics), and Patrick Lajeunesse (forestry).
Project: “Flexible Imaging Device: packaging an optic-based citizen science solution for mapping habitats in coastal areas”

Previous Post-Doctoral Researchers

2016–2018 **Fahim Mannan**, co-supervised with Derek Nowrouzezahrai (McGill), in collaboration with Algolux.
Project: “Learning to improve camera ISPs”

Graduated Ph.D. Students

2014–2018 **Yannick Hold-Geoffroy**, *FRQ-NT Ph.D. Scholarship, Graduate Studies Honor Roll, 2018 CIPPRS Doctoral Dissertation Award*, co-supervised with Paulo Gotardo (Disney Research Zurich).
Thesis: “Learning Geometric and Lighting priors from Natural Images”
last seen at Adobe Research

Graduated M.S. Students

2017–2019 **Geoffroi Côté**, *FRQ-NT M.S. Scholarship*, co-supervised with Simon Thibault (physics).
Thesis: "Deep Learning for Lens Design"
now a Ph.D. student in my group

2015–2017 **Félix Labrie-Larrivée**, co-supervised with Denis Laurendeau (ECE), in collaboration with Creaform.
Thesis: "Depth Texture Synthesis for Realistic Architectural Modeling"
last seen at INO

2015–2016 **Mathieu Garon**, *Mitacs Accelerate Internship*, in collab. with Frima Studio.
Thesis: "Deep 6-DOF Tracking"
now a Ph.D. student in my group

2014–2016 **Sébastien Michaud**.
Thesis: "Influence of Complex Environments on LiDAR-Based Robot Navigation"
last seen at Can-Explore

Graduate research interns

2019 **Julie Buquet**, Institut d'Optique Graduate School, co-supervised with Simon Thibault (physics).

2018–2019 **Thomas Nestmeyer**, Max Planck Institute for Intelligent Systems (MPI), project in collaboration with Facebook Reality Labs.
last seen at Hyundai MOBIS

2016–2018 **Henrique Weber**, Université Laval.
last seen at INO

2014–2018 **Dan Calian**, University College London (UK), project in collaboration with Disney Research.
last seen at Blue Prism

2014 **Jinsong Zhang**, Beihang University (China).
now Ph.D. student in my group

2014 **Mert Kiliçkaya, Hacetteppe U. (Turkey)**, *REPARTI International Internship*.
now Ph.D. student at University of Amsterdam

2014–2015 **Minghui Tan**, Yale (USA), project in collaboration with Disney Research, LA.
last seen at Google

2013–2015 **Miguel Granados**, Max Planck Institute (Germany), project in collaboration with Disney Research, Pittsburgh.
last seen at Magic Leap

2013 **Natasha Kholgade Banerjee**, CMU (USA), project in collaboration with Disney Research, Pittsburgh.
now Assistant Professor at Clarkson U.

Undergraduate research interns

2019 **Bowei Chen**, *MITACS Globalink International Scholarship*, ECE undergraduate, China.

2019 **Colin Panter**, Physics undergraduate, co-supervised with Frédéric Bretzner (neurobiology).

2019 **Jérémie Roy**, ECE undergraduate.

2018 **Akshaya Athwale**, *MITACS Globalink International Scholarship*, ECE undergraduate, IIT Dhanbad, India.

2017 **Marie-Joëlle Gosselin**, *NSERC Undergraduate Research Award*, ECE undergraduate.

2017 **Aditya Shekhar**, *MITACS Globalink International Scholarship*, ECE undergraduate, IIT Guwahati, India.

2016–2017 **Pierre-Olivier Boulet**, CS undergraduate.
last seen at Ubisoft

2016–2017 **Dominic Bilodeau**, ECE undergraduate, project in collaboration with University of Kyoto.
last seen at Robotiq

2016 **Charles-Olivier Dufresne Camaro**, *NSERC Undergraduate Research Award*, ECE undergraduate, project in collaboration with Umanx.
now Ph.D. student at the University of Toronto

2015–2016 **Louis-Philippe Asselin**, *Faculty of Science and Engineering Research Fellowship*, ECE undergraduate.
now M.S. student in my group

2015–2016 **Frédéric St-Pierre**, *NSERC Undergraduate Research Award 2015–16*, ECE undergraduate.

2014–2016 **Louis-Émile Robitaille**, ECE undergraduate.
now M.S. student at Université Laval

2014–2015 **Mathieu Garon**, ECE undergraduate (now graduated).
now Ph.D. student in my group

2015 **Julien Becirovski**, ECE undergraduate.

2014–2015 **Diane Fournier**, ECE undergraduate (now graduated).
last seen at Optel Vision

2014 **Michael Monette**, Physical eng. undergraduate (now graduated).
last seen at EXFO

2008 **Joseph Rollo**, CS undergraduate (now graduated).
last seen at General Dynamics

2007 **Nicholas Heckman**, CS undergraduate (now graduated).
last seen at Microsoft

Research professionals

2016–2019 **Maxime Tremblay**, Computer Vision and Systems Lab, supervision of 50% of his time during 2 periods of 6 months.

2017 **Thierry Moszkowicz**, Computer Vision and Systems Lab, supervision of 40% of his time during 6 months.

2016 **Benoit Duinat**, Geomatics Lab, supervision of 30% of his time during 4 months, in collaboration with Sylvie Daniel.

2016 **Oleg Boulanov**, Computer Vision and Systems Lab, supervision of 50% of his time during 6 months.

PROFESSIONAL EXPERIENCE

2013–2016 **Research Consultant**, *Disney Research*, Pittsburgh, USA.
Part-time consultant.

2011–2012 **Computer Vision Scientist**, *Tandent Vision Science Inc.*, Pittsburgh, USA.
Full-time researcher.

2006 **Software Engineer**, *Penthera Technologies Inc.*, Pittsburgh, USA.
Full-time software engineer.

LANGUAGES

French Native

English Excellent

Spanish Conversational

PROFESSIONAL AFFILIATIONS

2014–... Ordre des Ingénieurs du Québec