

# MINGLUN GONG

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**PROFESSOR AND DIRECTOR**

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## **EDUCATION AND DEGREES:**

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- Nov. 2003     **Doctor of Philosophy in Computer Science**  
Department of Computing Science, University of Alberta, Canada  
Dissertation:   Rayset and its applications to static and dynamic image synthesis
- Jul. 1997     **Master of Science in Computer Science**  
Department of Computer Science & Technology, Tsinghua University, P. R. China  
Thesis:         Rendering and real time walkthrough techniques for architectural modeling
- Jul. 1994     **Bachelor of Engineering**  
Harbin Engineering University, P. R. China  
Majors:         Computer Science & Mechanical Engineering

## **EMPLOYMENT HISTORY:**

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- May 2019 ~   **Professor, University of Guelph**
- Sept. 2015 ~ **Professor (early promoted), Memorial University of Newfoundland**
- Apr. 2019.    Graduate courses developed and taught: "Research Methods in Computer Science (COMP 690A/B)," "Computational Photography (COMP 6786)," "General Computing on Graphics Hardware (COMP 6784)," and "Fundamentals of Computer Graphics (COMP 6909)."  
Undergraduate course developed and taught: "Software Development for Mobile Devices (COMP 4768)," and "Visual Computing and Applications (COMP 3301)."  
Undergraduate course taught: "Computer Graphics (COMP 4751)."
- Sept. 2006 ~ **Adjunct Professor, University of Alberta**
- Dec. 2018     Co-supervising graduate students with Dr. Yee-Hong Yang. Jointly taught "Underwater Computational Photography" and "Compressive Sensing in Computational Photography" as individual study course (CMPUT 605).
- Sept. 2010 ~ **Associate Professor (early tenured), Memorial University of Newfoundland**  
Aug. 2015

- Nov. 2012 ~ **Visiting Professor, Shenzhen Institute of Advanced Technology**  
Jun. 2013 Visited the Visual Computing Research Center (VCC), led by Drs. Baoquan Chen and Hui Huang.
- Nov. 2010 ~ **Visiting Professor, Shenzhen Institute of Advanced Technology**  
Feb. 2011
- Aug. 2007 ~ **Assistant Professor, Memorial University of Newfoundland**  
Aug. 2010
- Aug. 2003 ~ **Assistant Professor, Laurentian University**  
Jul. 2007 Courses taught: "Computer Graphics (COSC 4306)," "Topics in Computer Vision (COSC 4426)," "Directed Studies in Graphics Hardware Programming (COSC 4706)," "Analysis of Algorithms (COSC 4106)," "Parallel Computing (COSC 4456)," "Object Oriented Programming Using C++ (COSC 2947)," "Assembly Language Programming (COSC 2406)," and "Data Structures II (COSC 2007)."
- Jul. 1999 ~ **Sessional Lecturer, University of Saskatchewan**  
Aug. 2000 Taught "Principles of Computer Science (CMPT 115)" for two summer terms.
- Jul. 1997 ~ **Software Engineer, China Academy of Building Research**  
Dec. 1997

## **RESEARCH CONTRIBUTIONS:**

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### **Refereed Articles in Prestigious Journals:**

1. Jun Zhou, Mingjie Wang, Wendong Mao, Minglun Gong, & Xiuping Liu: SiamesePointNet: A Siamese point network architecture for learning 3D shape descriptor. *Computer Graphics Forum*. 2019.
2. Shihao Wu, Peter Bertholet, Hui Huang, Daniel Cohen-Or, Minglun Gong, & Matthias Zwicker: Structure-aware data consolidation. *IEEE Transactions on Pattern Analysis and Machine Intelligence* 40(10): 2529-2537. October 2018.
3. Ke Xie, Hao Yang, Shengqiu Huang, Dani Lischinski, Marc Christie, Kai Xu, Minglun Gong, Daniel Cohen-Or, & Hui Huang: Creating and chaining camera moves for quadrotor videography. *ACM Transactions on Graphics* 37(4 - SIGGRAPH). August 2018.
4. Bojian Wu, Yang Zhou, Yiming Qian, Minglun Gong, & Hui Huang: Full 3D reconstruction of transparent objects. *ACM Transactions on Graphics* 37(4 - SIGGRAPH). August 2018.
5. Hui Huang, Ke Xie, Lin Ma, Dani Lischinski, Minglun Gong, Xin Tong, & Daniel Cohen-Or: Appearance modeling via proxy-to-image alignment. *ACM Transactions on Graphics* 37(1). January 2018.
6. Qian Zheng, Xiaochen Fan, Minglun Gong, Andrei Sharf, Oliver Deussen, & Hui Huang: 4D reconstruction of blooming flowers. *Computer Graphics Forum* 36(6): 405-417. September 2017.

7. Yunhai Wang, Jingting Li, Feiping Nie, Holger Theisel, Minglun Gong, & Dirk Lehmann: Linear discriminative star coordinates for exploring class and cluster separation of high dimensional data. *Computer Graphics Forum* 37(3 - EuroVis): 401-410. June 2017.
8. Yang Zhou, Huajie Shi, Dani Lischinski, Minglun Gong, Johannes Kopf, & Hui Huang: Analysis and controlled synthesis of inhomogeneous textures. *Computer Graphics Forum* 36(2 - Eurographics): 199-212. May 2017.
9. Hui Huang, Dani Lischinski, Zhuming Hao, Minglun Gong, Marc Christie, & Daniel Cohen-Or: Trip synopsis: 60km in 60sec. *Computer Graphics Forum* 35(7 - Pacific Graphics): 107-116. October 2016.
10. Kangxue Yin, Hui Huang, Pinxin Long, Alexei Gaissinski, Minglun Gong, & Andrei Sharf: Full 3D plant reconstruction via intrusive acquisition. *Computer Graphics Forum* 35(1): 272-284. February 2016.
11. Shihao Wu, Hui Huang, Minglun Gong, Matthias Zwicker, & Daniel Cohen-Or: Deep points consolidation. *ACM Transactions on Graphics* 34(6 - SIGGRAPH Asia). November 2015.
12. Yang Zhou, Kangxue Yin, Hui Huang, Hao Zhang, Minglun Gong, & Daniel Cohen-Or: Generalized cylinder decomposition. *ACM Transactions on Graphics* 34(6 - SIGGRAPH Asia). November 2015.
13. Hadar Averbuch-Elor, Yunhai Wang, Yiming Qian, Minglun Gong, Johannes Kopf, Hao Zhang, & Daniel Cohen-Or: Distilled collections from textual image queries. *Computer Graphics Forum* 34(2 - Eurographics): 131-142. May 2015.
14. Minglun Gong, Yiming Qian, & Li Cheng: Integrated foreground segmentation and boundary matting for live videos. *IEEE Transactions on Image Processing* 24(4): 1356-1370. April 2015.
15. Kangxue Yin, Hui Huang, Hao Zhang, Minglun Gong, Daniel Cohen-Or, & Baoquan Chen: Morfit: Interactive surface reconstruction from incomplete point clouds with curve-driven topology and geometry control. *ACM Transactions on Graphics* 33(6 - SIGGRAPH Asia). December 2014.
16. Shihao Wu, Wei Sun, Pinxin Long, Hui Huang, Daniel Cohen-Or, Minglun Gong, Oliver Deussen, & Baoquan Chen: Quality-driven Poisson-guided autoscanning. *ACM Transactions on Graphics* 33(6 - SIGGRAPH Asia). December 2014.
17. Grant Strong & Minglun Gong: Self-sorting map: An efficient algorithm for presenting multimedia data in structured layout. *IEEE Transactions on Multimedia* 16(4): 1045-1058. June 2014.
18. Feilong Yan, Minglun Gong, Daniel Cohen-Or, Oliver Deussen, & Baoquan Chen: Flower reconstruction from a single photo. *Computer Graphics Forum* 33(2 - Eurographics): 439-447. May 2014.
19. Andrei Sharf, Hui Huang, Cheng Liang, Jiapei Zhang, Baoquan Chen, & Minglun Gong: Mobility-trees for indoor scenes manipulation. *Computer Graphics Forum* 33(1): 2-14. February 2014.
20. Yunhai Wang, Minglun Gong, Tianhua Wang, Daniel Cohen-Or, Hao Zhang, & Baoquan Chen: Projective analysis for 3D shape segmentation. *ACM Transactions on Graphics* 32(6 - SIGGRAPH Asia). November 2013.

21. Hui Huang, Kangxue Yin, Minglun Gong, Dani Lischinski, Daniel Cohen-Or, Uri Ascher, & Baoquan Chen: "Mind the gap": Tele-registration for structure-driven image completion. *ACM Transactions on Graphics* 32(6 - SIGGRAPH Asia). November 2013.
22. Hui Huang, Shihao Wu, Daniel Cohen-Or, Minglun Gong, Hao Zhang, Guiqing Li, & Baoquan Chen: L1-medial skeleton of point cloud. *ACM Transactions on Graphics* 32(4 - SIGGRAPH): 65. July 2013.
23. Hui Huang, Shihao Wu, Minglun Gong, Daniel Cohen-Or, Uri Ascher, & Hao Zhang: Edge-aware point set resampling. *ACM Transactions on Graphics* 32(1): 9. January 2013.
24. Hui Huang, Minglun Gong, Daniel Cohen-Or, Yaobin Ouyang, Fuwen Tan, & Hao Zhang: Field-guided registration for feature-conforming shape composition. *ACM Transactions on Graphics* 31(6 - SIGGRAPH Asia): 179. November 2012. (Acceptance rate: 77/326=24%)
25. Miao Liao, Jizhou Gao, Ruigang Yang, & Minglun Gong: Video stereolization: Combining motion analysis with user interaction. *IEEE Transactions on Visualization and Computer Graphics* 18(7): 1079-1088. July 2012.
26. Liang Wang, Minglun Gong, Chenxi Zhang, Ruigang Yang, Cha Zhang, & Yee-Hong Yang: Automatic real-time video matting using time-of-flight camera and multichannel Poisson equations. *International Journal of Computer Vision* 97(1): 104-121. March 2012.
27. Li Cheng, Minglun Gong, Dale Schuurmans, & Terry Caelli: Real-time discriminative background subtraction. *IEEE Transactions on Image Processing* 20(5): 1401-1414. May 2011.
28. Minglun Gong, Ruigang Yang, Liang Wang, & Mingwei Gong: A performance study on different cost aggregation approaches used in real-time stereo matching. *International Journal of Computer Vision* 75(2): 283-296. November 2007.
29. Minglun Gong & Yee-Hong Yang: Real-time stereo matching using orthogonal reliability-based dynamic programming. *IEEE Transactions on Image Processing* 16(3): 879-884. March 2007.
30. Minglun Gong & Yee-Hong Yang: Estimate large motions using the reliability-based motion estimation algorithm. *International Journal of Computer Vision* 68(3): 319-330. July 2006.
31. Minglun Gong & Yee-Hong Yang: Fast unambiguous stereo matching using reliability-based dynamic programming. *IEEE Transactions on Pattern Analysis and Machine Intelligence* 27(6): 998-1003. June 2005.
32. Minglun Gong & Yee-Hong Yang: Genetic-based stereo algorithm and disparity map evaluation. *International Journal of Computer Vision* 47(1-3): 63-77. April-June 2002.

**Refereed Papers in Prestigious Conferences:**

33. Chunjin Song, Zhijie Wu, Yang Zhou, Minglun Gong, & Hui Huang: EFANet: Exchangeable feature alignment network for arbitrary style transfer. *AAAI Conference on Artificial Intelligence*. New York, NY, USA, February 7-12, 2020. (Acceptance rate: 1591/7737=21%)
34. Chunjin Song, Zhijie Wu, Yang Zhou, Minglun Gong, & Hui Huang: ETNet: Error transition network for arbitrary style transfer. *Neural Information Processing Systems*. Vancouver, BC, Canada, December 8-14, 2019. (Acceptance rate: 1428/6743=21%)

35. Yiming Qian, Yinqiang Zheng, Minglun Gong, & Yee-Hong Yang: Simultaneous 3D reconstruction for water surface and underwater scene. *European Conference on Computer Vision*. Munich, Germany, September 8-14, 2018. (Acceptance rate: 776/2439=32%)
36. Zili Yi, Hao Zhang, Ping Tan, & Minglun Gong: DualGAN: Unsupervised dual learning for image-to-image translation. *IEEE International Conference on Computer Vision*. Venice, Italy, October 22-29, 2017. (Acceptance rate: 621/2143=29%)
37. Yiming Qian, Minglun Gong, & Yee-Hong Yang: Stereo-based 3D reconstruction of dynamic fluid surfaces by global optimization. *IEEE Conference on Computer Vision and Pattern Recognition*: 1269-1278. Honolulu, HI, USA, July 21-26, 2017. (Acceptance rate: 783/2680=29%)
38. Yiming Qian, Minglun Gong, & Yee-Hong Yang: 3D reconstruction of transparent objects with position-normal consistency. *IEEE Conference on Computer Vision and Pattern Recognition*. Las Vegas, NV, USA, June 27-30, 2016. (Acceptance rate: 643/2145=30%)
39. Yiming Qian, Minglun Gong, & Yee-Hong Yang: Frequency-based environment matting by compressive sensing. *IEEE International Conference on Computer Vision*: 3532-3540. Santiago, Chile, December 13-16, 2015. (Acceptance rate: 525/1698=31%)
40. Timothy Yau, Minglun Gong, & Yee-Hong Yang: Underwater camera calibration using wavelength triangulation. *IEEE Conference on Computer Vision and Pattern Recognition*: 2499-2506. Portland, OR, USA, June 25-27, 2013. (Oral, Acceptance rate: 60/1870=3.2%)
41. Minglun Gong & Li Cheng: Foreground segmentation of live videos using locally competing 1SVMs. *IEEE Conference on Computer Vision and Pattern Recognition*: 2105-2112. Colorado Springs, CO, USA, June 21-23, 2011. (Acceptance rate: 440/1677=26%)
42. Miao Liao, Qing Zhang, Huamin Wang, Ruigang Yang, & Minglun Gong: Modeling deformable objects from a single depth camera. *IEEE International Conference on Computer Vision*: 167-174. Kyoto, Japan, September 29-October 2, 2009. (Oral, Acceptance rate: 48/1327=3.6%)
43. Li Cheng & Minglun Gong: Realtime background subtraction from dynamic scenes. *IEEE International Conference on Computer Vision*: 2066-2073. Kyoto, Japan, September 29-October 2, 2009. (Acceptance rate: 308/1327=23%)
44. Liang Wang, Hailin Jin, Ruigang Yang, & Minglun Gong: Stereoscopic inpainting: Joint color and depth completion from stereo images. *IEEE Conference on Computer Vision and Pattern Recognition*: 1-8. Anchorage, AK, USA, June 24-26, 2008. (Acceptance rate: 508/1593=32%)
45. Miao Liao, Liang Wang, Ruigang Yang, & Minglun Gong: Light fall-off stereo. *IEEE Conference on Computer Vision and Pattern Recognition*: 1-8. Minneapolis, MN, USA, June 18-23, 2007. (Acceptance rate: 351/1250=28%)
46. Minglun Gong: Enforcing temporal consistency in real-time stereo estimation. *European Conference on Computer Vision (III)*: 564-577. Graz, Austria, May 7-13, 2006. (Acceptance rate: 193/900=21%)
47. Minglun Gong & Yee-Hong Yang: Near real-time reliable stereo matching using programmable graphics hardware. *IEEE Conference on Computer Vision and Pattern Recognition (I)*: 924-931. San Diego, CA, USA, June 20-26, 2005. (Acceptance rate: 322/1200=27%)

48. Minglun Gong & Yee-Hong Yang: Fast stereo matching using reliability-based dynamic programming and consistency constraints. *IEEE International Conference on Computer Vision (I)*: 610-617. Nice, France, October 13-16, 2003. (Acceptance rate: 200/943=21%)

***Other Refereed Journal Articles:***

49. Hao Cai, Leida Li, Zili Yi, & Minglun Gong: Blind quality assessment of Gamut-mapped images via local and global statistical analysis. *Journal of Visual Communication and Image Representation* 61(5): 250-259. 2019.
50. Hao Cai, Leida Li, Zili Yi, & Minglun Gong: Towards a blind image quality evaluator using multi-scale second-order statistics. *Signal Processing: Image Communication* 71: 88-99. February 2019.
51. Mohamed H. Abdelpakey, Mohamed S. Shehata, Mostafa M. Mohamed, & Minglun Gong: Adaptive framework for robust visual tracking. *IEEE Access* 6: 55273-55283. 2018.
52. Ke Li, Changqing Zou, Shuhui Bu, Yun Liang, Jian Zhang, & Minglun Gong: Multi-modal feature fusion for geographic image annotation. *Pattern Recognition* 73(1): 1-14. January 2018.
53. Zili Yi, Yang Li, Songyuan Ji, & Minglun Gong: Artistic stylization of face photos based on a single exemplar. *The Visual Computer* 33(11): 1443-1452. November 2017.
54. Shiyao Wang, Michael Parsons, Jordan Stone-Maclean, Peter Rogers, Sarah Boyd, Kristopher Hoover, Oscar Meruvia-Pastor, Minglun Gong, & Andrew Smith: Augmented reality as a telemedicine platform for remote procedural training. *Sensors* 17(10): 2294. October 2017.
55. Shibai Yin, Yiming Qian, & Minglun Gong: Unsupervised hierarchical image segmentation through fuzzy entropy maximization. *Pattern Recognition* 68(C): 245-259. August 2017.
56. Shibai Yin, Xiangmo Zhao, Weixing Wang, & Minglun Gong: Efficient multilevel image segmentation through fuzzy entropy maximization and graph cut optimization. *Pattern Recognition* 47(9): 2894-2907. September 2014.
57. Liang Wang, Ruigang Yang, Minglun Gong, & Miao Liao: Real-time stereo using approximated joint bilateral filtering and dynamic programming. *Journal of Real-Time Image Processing* 9(3): 447-461. September 2014.
58. Enamul Hoque, Orland Hoeber, & Minglun Gong: CIDER: Concept-based image diversification, exploration, and retrieval. *Information Processing & Management* 49(5): 1122-1138. September 2013.
59. Enamul Hoque, Orland Hoeber, Grant Strong, & Minglun Gong: Combining conceptual query expansion and visual search results exploration for web image retrieval. *Journal of Ambient Intelligence and Humanized Computing* 4(3): 389-400. June 2013.
60. Enamul Hoque, Orland Hoeber, & Minglun Gong: Balancing the trade-offs between diversity and precision for web image search using concept-based query expansion. *Journal of Emerging Technologies in Web Intelligence* 4(1): 26-34. February 2012.
61. Minglun Gong, Yilei Zhang, & Yee-Hong Yang: Near-real-time stereo matching with slanted surface modeling and sub-pixel accuracy. *Pattern Recognition* 44(10-11): 2701-2710. October-November 2011.

62. Grant Strong & Minglun Gong: Similarity-based image organization and browsing using multi-resolution self organizing map. *Image and Vision Computing* 29(11): 774-786. October 2011.
63. Minglun Gong: Real-time joint disparity and disparity flow estimation on programmable graphics hardware. *Computer Vision and Image Understanding* 113(1): 90-100. January 2009.
64. Minglun Gong & Yee-Hong Yang: Rayset: A taxonomy for image-based rendering. *International Journal of Image and Graphics* 6(3): 313-339. July 2006.
65. Minglun Gong & Yee-Hong Yang: Camera field rendering for static and dynamic scenes. *Graphical Models* 67(2): 73-99. March 2005.
66. Minglun Gong & Yee-Hong Yang: Quadtree-based genetic algorithm and its applications to computer vision. *Pattern Recognition* 37(8): 1723-1733. August 2004.
67. Minglun Gong & Yee-Hong Yang: Layer-based morphing. *Graphical Models* 63(1): 45-59. January 2001.
68. Kaihuai Qin, Minglun Gong, Youjiang Guan, & Wenping Wang: A new method for speeding up ray tracing NURBS surfaces. *Computers & Graphics* 21(5): 577-586. September-October 1997.
69. Minglun Gong & Kaihuai Qin: Ray tracing techniques for architectural modeling and environmental images. *China Journal of Image and Graphics* 1(5): 448-454. November 1996.
70. Kaihuai Qin, Minglun Gong, Bian Wu, & Zesheng Tang: The genetic minimum weight triangulation of planar points. *Journal of Computer-Aided Design and Computer Graphics* 8(Suppl): 141-147. September 1996.
71. Kaihuai Qin, Minglun Gong, & Geliang Tong: Fast ray tracing NURBS surfaces. *Journal of Computer Science and Technology* 11(1): 17-29. January 1996.
72. Wenbo He, Minglun Gong, & Weiqiang Wang: The makespan of information transfers. *Journal of Harbin Engineering University* 16(3): 113-118. September 1995.

### **Refereed Book Chapters:**

73. Wendong Mao, Minglun Gong, Xin Huang, Hao Cai, & Zili Yi: A global-matching framework for multi-view stereopsis. *Lecture Notes in Computer Science* (11678), *Computer Analysis of Images and Patterns*: 635-647. Springer, 2019.
74. Zili Yi, Yang Li, & Minglun Gong: An efficient algorithm for feature-based 3D point cloud correspondence search. *Lecture Notes in Computer Science* (10072), *Advances in Visual Computing*: 485-496. Springer, 2016.
75. Yiming Qian, Hao Yuan, & Minglun Gong: Budget-driven big data classification. *Lecture Notes in Computer Science* (9091), *Advances in artificial intelligence*: 71-83. Springer International Publishing, 2015.
76. Yiming Qian, Minglun Gong, & Li Cheng: STOCS: An efficient self-tuning multiclass classification approach. *Lecture Notes in Computer Science* (9091), *Advances in artificial intelligence*: 291-306. Springer International Publishing, 2015.
77. Grant Strong, Rune Jensen, Minglun Gong, & Anne C. Elster: Organizing visual data in structured layout by maximizing similarity-proximity correlation. *Lecture Notes in Computer Science* (8034), *Advances in Visual Computing*: 703-713. Springer Berlin Heidelberg, 2013.

78. Orland Hoerber & Minglun Gong: A granular computing perspective on image organization within an image retrieval context. *Lecture Notes in Computer Science (7414), Rough Sets and Knowledge Technology*: 320-328. Springer Berlin Heidelberg, 2012.
79. Jun Zheng & Minglun Gong: Real-time image alignment for a gyro-visual hybrid pointing device. *Lecture Notes in Computer Science (7324), Image Analysis and Recognition (I)*: 174-183. Springer Berlin Heidelberg, 2012.
80. Enamul Hoque, Grant Strong, Orland Hoerber, & Minglun Gong: Conceptual query expansion and visual search results exploration for web image retrieval. *Advances in Intelligent and Soft Computing (86), Advances in Intelligent Web Mastering (3)*: 73-82. Springer Berlin Heidelberg, 2011.
81. Grant Strong, Enamul Hoque, Minglun Gong, & Orland Hoerber: Organizing and browsing image search results based on conceptual and visual similarities. *Lecture Notes in Computer Science (6454), Advances in Visual Computing*: 481-490. Springer Berlin Heidelberg, 2010.
82. Grant Strong, Orland Hoerber, & Minglun Gong: Visual image browsing and exploration (vibe): User evaluations of image search tasks. *Lecture Notes in Computer Science (6335), Active Media Technology*: 424-435. Springer Berlin Heidelberg, 2010.
83. Grant Strong & Minglun Gong: Browsing a large collection of community photos based on similarity on GPU. *Lecture Notes in Computer Science (5359), Advances in Visual Computing*: 390-399. Springer Berlin Heidelberg, 2008.
84. Nicolas Robidoux, Adam Turcotte, Minglun Gong, & Annie Tousignant: Fast exact area image upsampling with natural biquadratic histosplines. *Lecture Notes in Computer Science (5112), Image Analysis and Recognition*: 85-96. Springer Berlin Heidelberg, 2008.
85. Minglun Gong, Aaron Langille, & Mingwei Gong: Real-time image processing using graphics hardware: A performance study. *Lecture Notes in Computer Science (3656), Image Analysis and Recognition*: 1217-1225. Springer Berlin Heidelberg, 2005.

**Other Refereed Conference Proceeding Papers:**

86. Xin Huang, Mingjie Wang, & Minglun Gong: Hierarchically-fused generative adversarial network for text to realistic image synthesis. *Conference on Computer and Robot Vision*. Kingston, ON, Canada, May 29-31, 2019.
87. Cong Feng, Minglun Gong, Oliver Deussen, & Hui Huang: Treemapping via balanced partitioning. *Computational Visual Media Conference*. Bath, UK, April 24~26, 2019.
88. Wendong Mao, Mingjie Wang, Jun Zhou, & Minglun Gong: Semi-dense stereo matching using dual CNNs. *IEEE Winter Conference on Applications of Computer Vision*. Waikoloa Village, HI, USA, January 7-11, 2019.
89. Mingjie Wang, Jun Zhou, Wendong Mao, & Minglun Gong: Multi-scale convolution aggregation and stochastic feature reuse for DenseNets. *IEEE Winter Conference on Applications of Computer Vision*. Waikoloa Village, HI, USA, January 7-11, 2019.
90. Hao Cai, Sipan Ye, Andrew Vardy, & Minglun Gong: 3D visual homing for commodity UAVs. *Conference on Computer and Robot Vision*. Toronto, ON, Canada, May 9-11, 2018.
91. Wendong Mao & Minglun Gong: Disparity filtering with 3D convolutional neural networks. *Conference on Computer and Robot Vision*. Toronto, ON, Canada, May 9-11, 2018.



92. Farhad Mohamad Kazemi, Wolfgang Banzhaf, & Minglun Gong: Human recognition through walking styles by multiwavelet transform. *International Conference on Information and Knowledge Technology*. Hamadan, Iran, September 7-8, 2016.
93. Yunhai Wang, Yiming Qian, Yang Li, Minglun Gong, & Wolfgang Banzhaf: Artificial multi-bee-colony algorithm for k-nearest-neighbor fields search. *The Genetic and Evolutionary Computation Conference*: 1037-1044. Denver, CO, USA, July 20-24, 2016.
94. Zizui Chen, Mohamed S. Shehata, Minglun Gong, Heather Carnahan, Adam Dubrowski, & Andrew Smith: Feasibility of a semi-automated approach to grading point of care ultrasound image generation skills. *International Conference on Image and Vision Computing New Zealand*. Auckland, New Zealand, November 23-24, 2015.
95. Xiaohua Xie, Wenyong Gong, Minglun Gong, & Tieru Wu: Recovering intrinsic images from image sequences using total variation models. *International Conference on Image Processing*. Quebec City, QC, Canada, September 27-30, 2015.
96. Minglun Gong & Li Cheng: Incorporating estimated motion in real-time background subtraction. *International Conference on Image Processing*: 3265-3268. Brussels, Belgium, September 11-14, 2011. (Oral, Acceptance rate: 336/2245=15%)
97. Enamul Hoque, Orland Hoerber, & Minglun Gong: Evaluating the trade-offs between diversity and precision for web image search using concept-based query expansion. *International Conference on Web Intelligence and Intelligent Agent Technology (3)*: 130-133. Lyon, France, August 22, 2011.
98. Grant Strong & Minglun Gong: Data organization and visualization using self-sorting map. *Graphics Interface*: 199-206. St. John's, NL, Canada, May 25-27, 2011. (Oral, Acceptance rate: 29/74=39%)
99. Jason Gedge, Minglun Gong, & Yee-Hong Yang: Refractive epipolar geometry for underwater stereo matching. *Conference on Computer and Robot Vision*: 146-152. St. John's, NL, Canada, May 25-27, 2011. (Oral, Acceptance rate: 28/74=38%)
100. Minglun Gong, Liang Wang, Ruigang Yang, & Yee-Hong Yang: Real-time video matting using multichannel Poisson equations. *Graphics Interface*: 89-96. Ottawa, ON, Canada, May 31-June 2, 2010. (Oral, Acceptance rate: 33/88=38%)
101. Miao Liao, Qing Zhang, Ruigang Yang, & Minglun Gong: A volumetric approach for merging range images of semi-rigid objects captured at different time instances. *International Symposium on 3D Data Processing, Visualization and Transmission*. Paris, France, May 17-20, 2010.
102. Grant Strong & Minglun Gong: Organizing and browsing photos using different feature vectors and their evaluations. *International Conference on Image and Video Retrieval*: 3. Santorini, Greece, July 8-10, 2009. (Oral, Acceptance rate: 17/127=13%)
103. Minglun Gong & Yee-Hong Yang: Near-real-time image matting with known background. *Conference on Computer and Robot Vision*: 81-87. Kelowna, BC, Canada, May 25-27, 2009. (Acceptance rate: 50%)
104. Nicolas Robidoux, Minglun Gong, John Cupitt, Adam Turcotte, & Kirk Martinez: CPU, SMP and GPU implementations of Nohalo level 1, a fast co-convex antialiasing image resampler. *International C\* Conference on Computer Science & Software Engineering*: 185-195. Montreal, QC, Canada, May 19-21, 2009. (Oral, Acceptance rate: 22%)

105. Minglun Gong & Li Cheng: Real-time foreground segmentation on GPUs using local online learning and global graph cut optimization. *International Conference on Pattern Recognition*: 1-4. Tampa, FL, USA, December 8-11, 2008. (Acceptance rate: 1006/1631=62%)
106. Yilei Zhang, Minglun Gong, & Yee-Hong Yang: Local stereo matching with 3D adaptive cost aggregation for slanted surface modeling and sub-pixel accuracy. *International Conference on Pattern Recognition*: 1-4. Tampa, FL, USA, December 8-11, 2008. (Oral, Acceptance rate: 295/1631=18%)
107. Miao Liao, Liang Wang, Ruigang Yang, & Minglun Gong: Real-time light fall-off stereo. *International Conference on Image Processing*: 1380-1383. San Diego, CA, USA, October 12-15, 2008. (Acceptance rate: 45%)
108. Yilei Zhang, Minglun Gong, & Yee-Hong Yang: Real-time multi-view stereo algorithm using adaptive-weight Parzen window and local winner-take-all optimization. *Conference on Computer and Robot Vision*: 113-120. Windsor, ON, Canada, May 28-30, 2008. (Oral)
109. Minglun Gong, Jason M. Selzer, Cheng Lei, & Yee-Hong Yang: Real-time backward disparity-based rendering for dynamic scenes using programmable graphics hardware. *Graphics Interface*: 241-248. Montreal, QC, Canada, May 28-30, 2007. (Oral, Acceptance rate: 43/89=48%)
110. Minglun Gong: Images restoration using an iterative dynamic programming approach. *Conference on Computer and Robot Vision*: 395-402. Montreal, QC, Canada, May 28-30, 2007. (Acceptance rate: 56/103=54%)
111. Minglun Gong & Yee-Hong Yang: Disparity flow estimation using orthogonal reliability-based dynamic programming. *International Conference on Pattern Recognition (II)*: 70-73. Hong Kong, August 20-24, 2006. (Oral, Acceptance rate: 311/2029=15%)
112. Minglun Gong: A GPU-based algorithm for estimating 3D geometry and motion in near real-time. *Conference on Computer and Robot Vision*: 10. Quebec City, QC, Canada, June 7-9, 2006. (Oral, Acceptance rate: 35/113=35%)
113. Aaron Langille & Minglun Gong: An efficient match-based duplication detection algorithm. *Conference on Computer and Robot Vision*: 64. Quebec City, QC, Canada, June 7-9, 2006. (Acceptance rate: 77/113=68%)
114. Liang Wang, Mingwei Gong, Minglun Gong, & Ruigang Yang: How far can we go with local optimization in real-time stereo matching: A performance study on different cost aggregation approaches. *International Symposium on 3D Data Processing, Visualization and Transmission*: 129-136. Chapel Hill, NC, USA, June 14-16, 2006.
115. Liang Wang, Miao Liao, Minglun Gong, Ruigang Yang, & David Nister: High-quality real-time stereo using adaptive cost aggregation and dynamic programming. *International Symposium on 3D Data Processing, Visualization and Transmission*: 798-805. Chapel Hill, NC, USA, June 14-16, 2006. (Oral)
116. Minglun Gong & Ruigang Yang: Image-gradient-guided real-time stereo on graphics hardware. *International Conference on 3-D Digital Imaging and Modeling*: 548-555. Ottawa, ON, Canada, June 13-17, 2005. (Oral, Acceptance rate: 39/127=31%)
117. Minglun Gong & Yee-Hong Yang: Estimate large motions using reliability-based dynamic programming. *International Conference on Image Processing (IV)*: 2559-2562. Singapore, October 24-27, 2004. (Acceptance rate: 883/2040=43%)

118. Minglun Gong & Yee-Hong Yang: Uniform sampling for image-based rendering shiny objects. *Eurographics Short Papers*: 73-76. Grenoble, France, August 30-September 3, 2004. (Oral, Acceptance rate: 24/60=40%)
119. Minglun Gong: Motion estimation using dynamic programming with selective path search. *International Conference on Pattern Recognition (IV)*: 203-206. Cambridge, United Kingdom, August 23-26, 2004. (Acceptance rate: 946/1781=53%)
120. Minglun Gong & Yee-Hong Yang: Multi-resolution genetic algorithm and its application in motion estimation. *International Conference on Pattern Recognition (I)*: 644-647. Quebec City, QC, Canada, August 11-15, 2002. (Acceptance rate: 805/1240=65%)
121. Minglun Gong & Yee-Hong Yang: Multi-resolution stereo matching using genetic algorithm. *CVPR Workshop on Stereo and Multi-Baseline Vision*: 21-29. Kauai, HI, USA, December 9-10, 2001. (Oral, Acceptance rate: 19/66=29%)
122. Minglun Gong & Yee-Hong Yang: Genetic-based multiresolution color image segmentation. *Vision Interface*: 141-148. Ottawa, ON, Canada, June 7-9, 2001.
123. Minglun Gong & Yee-Hong Yang: The rayset and its applications. *Graphics Interface*: 71-80. Ottawa, ON, Canada, June 7-9, 2001. (Oral, Acceptance rate: 27/56=48%)
124. Kaihuai Qin, Wenping Wang, & Minglun Gong: A genetic algorithm for the minimum weight triangulation. *International Conference on Evolutionary Computation*: 541-546. Indianapolis, IN, USA, April 13-16, 1997.

### **Refereed Conference Posters and Presentations:**

125. Enamul Hoque, Orland Hoerber, & Minglun Gong: A concept-based interactive visualization approach to web image search. *IEEE Information Visualization Conference (Poster)*. Providence, RI, USA, October 23-28 2011.
126. Aaron Maynard & Minglun Gong: Real-time seismic wave modeling and visualization. *Graphics Interface (Poster)*. Ottawa, ON, Canada, May 31-June 2 2010.
127. Huamin Wang, Miao Liao, Qing Zhang, Ruigang Yang, & Minglun Gong: Image-based physics-driven modeling of 4D fluid. *Mid-West Graphics Workshop*. Iowa City, IA, USA, October 19-21 2007.
128. Minglun Gong & Yee-Hong Yang: The super sprite: A graphic primitive based on light field. *Western Computer Graphics Symposium*. Silver Star, BC, Canada, March 24-27 2002.

### **Patents and Copyrights:**

- Hui Huang, Shihao Wu, Minglun Gong, Matthias Zwicker, & Daniel Cohen-Or: Three-dimensional point cloud model re-establishment method and apparatus. *US patent*. 2017.
- Hui Huang, Zhuming Hao, Minglun Gong, Dani Lischinski, & Daniel Cohen-Or: Navigation method based on three-dimensional scene. *PCT patent*, WO2016179825 A1. November 17, 2016. (Filed on May 14, 2015)
- Yang Zhou, Hui Huang, Kangxue Yin, Xu Cao, Minglun Gong, Hao Zhang, & Daniel Cohen-Or: Generalized cylinder-based 3D model decomposition method and system. *Chinese patent*. 2015.

- Hui Huang, Shihao Wu, Wei Sun, Pinxin Long, Minglun Gong, Daniel Cohen-Or, & Oliver Deussen: Point cloud three-dimensional model reconstruction method and system. *PCT patent*, WO2015188445 A1. December 17, 2015. (Filed on August 19, 2014)
- Hui Huang, Zhuming Hao, Minglun Gong, Dani Lischinski, & Daniel Cohen-Or: Scene importance based navigation system. *Software Copyright*, Chinese Registration No: 2015SR066036. 2015. (Registration date: April 21, 2015)
- Hui Huang, Kangxue Yin, Minglun Gong, Baoquan Chen, & Yunhai Wang: Image repairing method and device. *PCT patent*, WO2014169561 A1. October 23, 2014. (Filed on September 13, 2013)
- Minglun Gong: Video segmentation method. *US patent*, US20130329987 A1. December 12, 2013. (Filed on June 11, 2012)
- Yunhai Wang, Tianhua Wang, Minglun Gong, Baoquan Chen, Hui Huang, & Xiaohua Xie: Three-dimensional model segmentation method and segmentation system. *Chinese patent*, CN103218818 A. July 24, 2013. (Filed on April 19, 2013)
- Minglun Gong: Real-time image and video matting. *PCT patent*, US8320666 B2. February 17, 2011. (Filed on August 13, 2010; Granted on November 27, 2012)
- Minglun Gong: Fast stereo matching using reliability-based dynamic programming. *Software Copyright*, Canadian Registration No: 1023053, US Registration No: TXU001192131. August 23, 2004. (Registration date: August 23, 2004)

**Invited Talks (other than conference presentations):**

- Capturing transparent objects: From appearances to full 3D models  
Nov. 15, 2018 *Faculty of Computer Science, Dalhousie Univ.* Halifax, NS, Canada
- Two routes for image-to-image translation: Rule-based vs. learning-based  
Sep. 20, 2018 *Visual Computing Center, Shenzhen Univ.* Shenzhen, China  
Dec. 15, 2017 *Center for Research in Computer Vision, Univ. of Central Florida.* Orlando, FL, USA  
Nov. 17, 2017 *NSERC CREATE Data Analytics & Visualization Bootcamp.* Toronto, ON, Canada
- Rendering and modeling of transparent objects  
Sep. 2, 2016 *Visual Computing Center, Shenzhen Univ.* Shenzhen, China
- Quality-driven autonomous scanning of complex objects  
Oct. 28, 2016 *Dept. of Computer Science, Memorial Univ.* St. John's, NL, Canada  
May 20, 2016 *GeoICT Lab, York Univ.* Toronto, ON, Canada
- Modeling and analyzing 3D shapes using clues from 2D images  
Jun. 4, 2015 *Symposia talk at Conference on Computer and Robot Vision.* Halifax, NS, Canada  
Apr. 9, 2015 *Dept. of Computer Science, Memorial Univ.* St. John's, NL, Canada
- Tele-registration: A field-guided approach for feature-conforming shape composition  
May 21, 2013 *Bioinformatics Institute, A\*STAR.* Singapore
- Arranging arbitrary data into structured layouts  
May 20, 2013 *Bioinformatics Institute, A\*STAR.* Singapore
- Real-time video object cutout using locally competing 1SVMs

- Oct. 24, 2012 *Dept. of Computer Science, Nanjing Univ.* Nanjing, China  
Aug. 16, 2012 *Emerging Information and Technology Conference.* Toronto, ON, Canada
- Real-time video matting: Extraction of fuzzy foreground subjects from live footage  
Apr. 2, 2010 *Dept. of Computer Science, Memorial Univ.* St. John's, NL, Canada
  - Real-time background subtraction using support vector machine  
Mar. 3, 2010 *Dept. of Computer Science, Nanjing Univ.* Nanjing, China  
Feb. 25, 2010 *Institute of Computing Technology of Chinese Academy of Sciences.* Beijing, China  
Oct. 28, 2008 *Coast-to-Coast Seminar, ACEnet/D-Drive/IRMACS/SHARCNET/WestGrid.* St. John's, NL, Canada
  - Joint color and depth inpainting from stereo images  
Jun. 1, 2009 *CS VML Seminar, Simon Fraser Univ.* Burnaby, BC, Canada
  - Separating foreground from backgrounds  
May 25, 2009 *Tutorial at Conference on Computer and Robot Vision.* Kelowna, BC, Canada
  - Organizing and browsing large photo collections based on similarity on GPU  
Dec. 5, 2008 *Faculty of Computer Science, Dalhousie Univ.* Halifax, NS, Canada
  - Real-time rendering of dynamic scenes on graphics hardware  
Nov. 22, 2007 *Dept. of Computer Science, Memorial Univ.* St. John's, NL, Canada
  - Depth recovery using light fall-off property  
Jul. 23, 2007 *Dept. of Computing Science, Univ. of Alberta.* Edmonton, AB, Canada
  - Real-time image-based modeling and rendering for dynamic scenes  
Apr. 28, 2006 *Dept. of Computer Science, Memorial Univ.* St. John's, NL, Canada
  - A real-time GPU-based disparity flow estimation algorithm  
Aug. 9, 2005 *Dept. of Computing Science, Univ. of Alberta.* Edmonton, AB, Canada
  - Toward real-time marker-less motion tracking  
Jun. 28, 2005 *Workshop on Computer Simulation & Virtual Reality Applications.* Sudbury, ON, Canada
  - Analyze and synthesize dynamic scenes using programmable graphics hardware  
Oct. 27, 2004 *Center for Visualization and Virtual Environment, Univ. of Kentucky.* Lexington, KY, USA  
Aug. 18, 2004 *Microsoft Research Asia.* Beijing, China
  - Toward interactive 3D movies and immersive tele-presence  
Apr. 22, 2003 *Dept. of Math and Computer Science, Laurentian Univ.* Sudbury, ON, Canada  
Apr. 2, 2003 *Dept. of Math and Computer Science, Univ. of Lethbridge.* Lethbridge, AB, Canada
  - The rayset taxonomy and novel image-based rendering approaches  
Mar. 27, 2003 *Visual Computing Seminar, Univ. of Alberta.* Edmonton, AB, Canada
  - Multi-resolution genetic algorithm and its applications in computer vision  
Sept. 25, 2002 *Visual Computing Seminar, Univ. of Alberta.* Edmonton, AB, Canada

## **STUDENT ADVISING:**

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### **Current Students:**

- 2017 ~      **Mingjie Wang**      **Ph.D. candidate, Memorial Univ.**  
Recipient of “Dean’s Doctoral Award”
- 2017 ~      **Mohamed Hamed Abdelpakey**      **Ph.D. candidate, Memorial Univ. (Co-sup: Dr. M. Shehata)**
- 2016 ~      **Xin Huang**      **Ph.D. candidate, Memorial Univ.**  
Recipient of “Chinese Government Scholarship”
- 2015 ~      **Hao Cai**      **Ph.D. candidate, Memorial Univ.**  
Recipient of “Chinese Government Scholarship”

### **Former Doctorial Students & PostDocs**

- 2015 ~ 2019      **Wendong Mao**      **Ph.D., Memorial Univ.**  
Dissertation: Learning-based stereo matching for 3D reconstruction  
Recipient of “Dean’s Doctoral Award” and “Fellow of the School of Graduate Studies”
- 2014 ~ 2018      **Yiming Qian**      **Ph.D., Univ. of Alberta (Co-sup: Dr. Y.-H. Yang)**  
Dissertation: Light transport acquisition and 3D reconstruction in the presence of light refraction  
Winner of “Alberta Innovates Technology Futures Graduate Student Scholarship,” “CS Early Achievement Award” and “Dean’s Excellence Award”
- 2014 ~ 2018      **Zili Yi**      **Ph.D., Memorial Univ.**  
Dissertation: From rule-based to learning-based image-conditional image generation  
Thesis defense passed with distinction
- 2017 ~ 2018      **Jun Zhou**      **Joint Ph.D. Training, Dalian Univ. of Tech.**  
Funded by China Scholarship Council
- 2014      **Shibai Yin**      **Postdoctoral fellow, Memorial Univ.**  
Present Position: Associate Professor at Southwestern University of Finance and Economics
- 2013 ~ 2014      **Yunhai Wang**      **Postdoctoral fellow, Memorial Univ.**  
Co-supervised with Dr. W. Banzhaf for the first 5 months  
Present Position: Professor at Shandong University
- 2012 ~ 2013      **Shibai Yin**      **Joint Ph.D. Training, Chang’an Univ.**  
Funded by China Scholarship Council

2009 ~ 2013    **Grant Strong**        **Ph.D., Memorial Univ.**  
Dissertation: Arranging arbitrary data into structured layouts  
Funded by Alexander Graham Bell Canada Graduate Scholarship

**Former Master Theses:**

2014 ~ 2019    **Songyuan Ji**        **M.Sc. thesis, Memorial Univ. (Co-sup: Drs. Y. Chen & T. Hu)**  
Thesis: Deep learning for genome-wide association studies and the impact of SNP locations

2015 ~ 2018    **Farhad Kazemi**    **M.Sc. thesis, Memorial Univ. (Co-sup: Dr. W. Banzhaf)**  
Thesis: Automatic high content screening using deep learning

2014 ~ 2017    **Zizui Chen**        **M.Sc. thesis, Memorial Univ. (Co-sup: Drs. M. Shehata, S. Czarnuch, & A. Smith)**  
Thesis: A computer vision based ultrasound operator skill evaluation

2016 ~ 2017    **Shiyao Wang**     **M.Sc. thesis, Memorial Univ. (Co-sup: Drs. O. Meruvia-Pastor & A. Smith)**  
Thesis: Augmented reality as a telemedicine platform for remote procedural training

2016 ~ 2017    **Xue Cui**            **M.Sc. thesis, Memorial Univ.**  
Thesis: Lattice Boltzmann Method and vortex methods for fluid animation

2013 ~ 2015    **Hao Yuan**         **M.Sc. thesis, Memorial Univ. (Co-sup: Dr. J. Tang)**  
Thesis: Self-tuning one-class support vector machines for data classification

2012 ~ 2014    **Yiming Qian**     **M.Sc. thesis, Memorial Univ.**  
Thesis: Labeling large scale social media data using budget-driven one-class SVM classification

2011 ~ 2014    **Timothy Yau**      **M.Sc. thesis, Univ. of Alberta (Co-sup: Dr. Y.-H. Yang)**  
Thesis: Underwater camera calibration and 3D reconstruction  
Funded by NSERC Postgraduate Scholarship  
Recipient of "CS Outstanding MSc Thesis Award"

2010 ~ 2011    **Enamul Hoque**    **M.Sc. thesis, Memorial Univ. (Co-sup: Dr. O. Hoerber)**  
Thesis: Concept-based query expansion and interactive visualization for web image search  
Present Position: Assistant Professor at York University

2009 ~ 2011    **Jason Gedge**      **M.Sc. thesis, Univ. of Alberta (Co-sup: Dr. Y.-H. Yang)**  
Thesis: Underwater stereo matching and its calibration  
Funded by NSERC Postgraduate Scholarship and iCORE Graduate Student Scholarship in Information and Communications Technology

- 2008 ~ 2010    **Jun Zheng**            **M.Sc. thesis, Memorial Univ.**  
Thesis: Real-time image registration and its app. in motion-visual hybrid controller
- 2007 ~ 2009    **Grant Strong**            **M.Sc. thesis, Memorial Univ.**  
Thesis: Similarity-based image organization and browsing  
Recipient of the “Fellow of the School of Graduate Studies” designation and the  
“University Medal for Excellence in Graduate Studies”
- 2006 ~ 2008    **Yilei Zhang**            **M.Sc. thesis, Univ. of Alberta (Co-sup: Dr. Y.-H. Yang)**  
Thesis: Towards real-time adaptive support weight stereo algorithms  
Recipient of Alberta Ingenuity R&D Associates Award upon graduation

**Former Master Projects:**

- Winter 2015    **Liyao Deng**            **M.Sc. project, Memorial Univ.**  
Project: Real-time rigid body simulation on GPUs
- Fall 2014        **Hemanth Billapati**    **M.Sc. project, Memorial Univ.**  
Project: LocationTracker: An Android app for location tracking and visualization
- Summer 2014    **Peiwen Wang**            **M.Sc. project, Memorial Univ.**  
Project: An online user study tool for geo-related information retrieval
- Summer 2014    **Sri Sudana**            **M.Sc. project, Memorial Univ.**  
Project: Real-time interactive fluid simulation on GPUs
- Summer 2014    **Naji Mahmoud**        **M.Sc. project, Memorial Univ.**  
Project: Visualizing user calling behavior on mobile devices
- Fall 2013        **Zequan Feng**            **M.Sc. project, Memorial Univ.**  
Project: An interactive interface for extracting foreground objects from videos
- 2012 ~ 2013    **Mustafa Bhuiyan**    **M.Sc. project, Memorial Univ. (Co-sup: Dr. O. Hoerber)**  
Project: Image search results organization based on metadata and visual features
- 2012            **Guangyu Liu**            **M.Engr. project, Memorial Univ.**  
Project: Navigating in and interacting with virtual environments
- 2010 ~ 2012    **Zhi Li**                    **M.Sc. project, Memorial Univ. (Co-sup: Dr. O. Hoerber)**  
Project: Visualizing travel photos

**Former Bachelor Honor’s Theses:**

- Fall 2008        **Jason Gedge**            **B.Sc. honors thesis, Memorial Univ.**  
Thesis: Automatic panorama construction - An in-depth look into image stitching  
Recipient of NSERC Postgraduate Scholarship upon graduation
- 2005 ~ 2006    **Mathieu Dupont**        **B.Sc. honors thesis, Laurentian Univ.**  
Thesis: Texture synthesis - A study of single and multiresolution algorithms



- 2005 ~ 2006    **Donald Morgan**    **B.Sc. honors thesis, Laurentian Univ.**  
Thesis: Neural networks & reinforce. learning for motor control of a virtual creature  
Recipient of NSERC Postgraduate Scholarship upon graduation
- 2004 ~ 2005    **Aaron Langille**    **B.Sc. honors thesis, Laurentian Univ.**  
Thesis: Digital image forgery detection
- 2003 ~ 2004    **Kevin Brosseau**    **B.Sc. honors thesis, Laurentian Univ.**  
Thesis: A strategic card game using A.I. with multiple levels of ingenuity

**Former Undergraduate Projects:**

- 2008 ~ 2009    **Kenneth Smith**    **B.Engr. final project, Memorial Univ. (Co-sup: Dr. B. Veitch)**  
Project: GPU-based real-time 3D fluid simulator
- Summer 2008    **Jason Gedge**    **Undergrad intern, Memorial Univ.**  
Project: Scene modeling and rendering using computational photography  
Funded by NSERC Undergraduate Student Research Award
- Summer 2006    **Adam Turcotte**    **Undergrad intern, Laurentian Univ.**  
Project: Image enhancement and enlargement for digital photography  
Funded by NSERC Undergraduate Student Research Award  
Recipient of NSERC Postgraduate Scholarship upon graduation
- Summer 2005    **Aaron Langille**    **Undergrad intern, Laurentian Univ.**  
Project: Digital image forgery detection using graphics hardware
- Summer 2004    **John Whissell**    **Undergrad intern, Laurentian Univ.**  
Project: Photorealistic image synthesis using graphics hardware  
Recipient of NSERC Postgraduate Scholarship upon graduation
- Fall 2003        **Matthew Bardeggia** **B.Sc. final project, Laurentian Univ.**  
Project: Non-photorealistic rendering with Cg

**RESEARCH GRANTS:**

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**Support Currently Held:**

- |             |  |                  |
|-------------|--|------------------|
| 2019        | <b>University of Guelph Start-up Fund</b>  | <b>\$50,000</b>  |
| 2019 ~ 2020 | <b>NSERC Research Tools and Instruments (with Drs. Bing Chen &amp; Helen Zhang)</b><br>Funded for an infrastructure application titled “vEER: A visualization platform for environmental emergency response decision support.” | <b>\$146,243</b> |

**2017 ~ 2022 NSERC Individual Discovery Grants \$130,000**  
Five-year award at \$26,000 per year for a research program titled “Quality-driven autonomous 3D reconstruction of large-scale scenes.”

**Support Held in the Past:**

**2018 ~ 2019 Innovation for Defence Excellence and Security Fund \$79,970**  
Subcontract for a project titled “Full motion video and still imagery tracking toolset.”

**2017 ~ 2019 NSERC Research Tools and Instruments (with Drs. Rodolphe Devillers, Mohamed S. Shehata, & George Mann) \$148,833**  
Funded for an infrastructure application titled “A UAV-based system for hybrid LiDAR and photogrammetry sensing.”

**2017 ~ 2019 Memorial University Headship Research Allowance \$60,000**

**2017 ~ 2018 Joint NSERC Engage/Mitacs Accelerate Program \$40,000**  
Support for collaboration with AltumView Systems Inc. on a project titled “Robust algorithms for real-world face recognition.” Cash contribution from AltumView Systems Inc. (\$7,500) is included.

**2017 ~ 2018 Harris Centre MMSB Waste Management Applied Research Fund \$11,400**  
Funded for a project titled “Vision-based pay-as-you-throw system.”

**2016 ~ 2018 Memorial University Multidisciplinary Fund \$10,000**  
Funded for a multidisciplinary project titled “Immersive telepresence for remote and rural health.”

**2012 ~ 2017 NSERC Individual Discovery Grants \$110,000**  
Five-year award at \$22,000 per year for a research program titled “Computer vision algorithms for live video processing using programmable graphics hardware.”

**2014 ~ 2015 GRAND NCE Collaborative Network Investigator Award \$7,377**  
Funding for participation in a project titled “Data- and user-driven modelling of visual content.”

**2007 ~ 2012 NSERC Individual Discovery Grants \$100,000**  
Five-year award at \$20,000 per year for a research program titled “Real-time dynamic scene modeling and rendering”.

2010 ~ 2011	<b>Cupids 400 Project (with Drs. Yuanzhu Chen &amp; Orland Hoerber)</b>	<b>\$34,033</b>
2009 ~ 2011	<b>RDC Industrial Research and Innovation Fund</b> Funded for a project titled “Parallel computer vision algorithms for real-time processing on GPUs.”	<b>\$50,000</b>
2009	<b>Springboard Patent &amp; Legal Fund Awards</b> Funded for a project titled “Real-time video matting for online background replacement”. Institutional matching fund (\$2,250) is included.	<b>\$10,000</b>
2007	<b>Memorial University Start-up Fund</b>	<b>\$25,000</b>
2004 ~ 2007	<b>NSERC Individual Discovery Grants</b> Three-year award at \$14,000 per year for a research program titled “Dynamic image-based scene modeling and rendering”.	<b>\$42,000</b>
2005 ~ 2006	<b>CFI New Opportunities Fund</b> Funded for an infrastructure project titled “A CPU/GPU cluster for scene analysis and synthesis”. Matching funds from Ontario Innovation Trust (\$16,080) and business contribution (\$14,463) are included.	<b>\$46,623</b>
2004 ~ 2006	<b>CITO Research Partnerships Program (with Dr. Peter Kaiser)</b> Business cash (\$30,000) and in-kind (\$64,000) contributions are included. This is a two-year program for supporting collaboration between science and engineering. The project is titled “Vision systems for underground support assessment”.	<b>\$170,000</b>
2005	<b>Laurentian University Research Fund</b>	<b>\$2,800</b>
2004 ~ 2005	<b>NSERC Research Tools and Instruments</b> Contribution from Laurentian University (\$2,500) is included. Funding is for setting up a multi-camera system that will be used in the “Dynamic image-based modeling and rendering” project.	<b>\$22,168</b>
2004	<b>Laurentian University Research Fund</b>	<b>\$2,025</b>
2003	<b>Laurentian University Start-up Fund</b>	<b>\$10,000</b>
2002	<b>University of Alberta Killam Research Allowance</b>	<b>\$2,000</b>

## **HONORS AND AWARDS:**

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- May 2019**     **Best Paper Award, Canadian Image Processing and Pattern Recognition Society**  
Awarded for our paper titled “Hierarchically-fused Generative Adversarial Network for text to realistic image synthesis” at the 16<sup>th</sup> Conference on Computer and Robot Vision.
- Dec. 2016**     **Best Paper Award, ISVC Steering Committee**  
Awarded for our paper titled “An efficient algorithm for feature-based 3D point cloud correspondence search” at the 12<sup>th</sup> International Symposium on Visual Computing.
- Jun. 2015**     **Best Paper Award, Canadian Artificial Intelligence Association**  
Awarded for our paper titled “Budget-Driven Big Data Classification” at the 28<sup>th</sup> Canadian Conference on Artificial Intelligence.
- Nov. 2005**     **New Opportunity Fund Award, Canada Foundation for Innovation**  
Granted to selected new faculties who are taking up their first full-time academic appointments at eligible Canadian universities.
- May 2002 ~  
Aug. 2003**     **Izaak Walton Killam Memorial Scholarship, University of Alberta**  
Granted for two years at \$20,100 annual plus tuition and fees. This is the most prestigious graduate award administered by the university. About 20 students are honored each year, chosen among doctoral students from all disciplines.
- Sept. 1998 ~  
Aug. 2001**     **University Graduate Scholarship, University of Saskatchewan**  
A merit-based award granted for three years at about \$16,000 per year.
- Jun. 1996**     **The Second Prize of the Science & Technology Progress**  
Issued by the State Education Commission of China for the project developed by our research group in Tsinghua University.
- Oct. 1995**     **Guanghua Scholarship, Tsinghua University**  
A one-time ¥1,200 scholarship awarded to top graduate students.
- Jul. 1994**     **Outstanding Graduate, Harbin Engineering University**  
About 10 students are honored each year upon their graduations, chosen from over a thousand graduates.
- Mar. 1994**     **Meritorious team in the Mathematical Contest in Modeling**  
Awarded to our 3-person team by the Consortium for Mathematics and Its Applications of US.
- Sept. 1991 ~  
Jul. 1994**     **University Scholarships, Harbin Engineering University**  
Received several scholarships at different levels during my undergraduate study.

## **ADMINISTRATIVE SERVICES:**

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### **Management:**

- Director, School of Computer Sci., Univ. of Guelph 2019~
- Head, Dept. of Computer Sci., Memorial Univ. 2016~2019
- Deputy Head (Graduate Studies), Dept. of Computer Sci., Memorial Univ. 2013~2015

### **Chair of Committees, Memorial:**

- Graduate Studies Committee 2013~2015
- Faculty Search Committee 2009~2010, 2015~2016

### **Member of Standing Committees, Memorial:**

- Graduate Studies Committee 2007~2010
- Undergraduate Studies Committee 2010~2011
- Faculty Search Committee 2010~2011, 2013~2015
- Promotion and Tenure Committee 2013~2014
- Faculty of Science Graduate Studies Committee 2013~2015

### **Member of Ad-hoc Committees, Memorial:**

- Joint Search Committee for CRC Tier II Chair in Bioinformatics 2016
- Associate Dean of Science Review Committee 2015
- Computer Science Headship Search Committee 2012
- Computer Science Headship Review Committee 2012
- Strategic Planning Committee 2012
- APICS and Programming Competition Committee 2008~2010

### **Member of Committees, Laurentian:**

- Resource Committee 2003~2004, 2005~2007
- Graduate Program Planning Committee 2005~2007
- CO-OP Committee 2004~2005

## **PROFESSIONAL SERVICES:**

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### **Editorial Board Member for Journals:**

- Pattern Recognition, Elsevier, 2014.06~pres
- ISRN Artificial Intelligence, Hindawi, 2011.06~2013.02

### **Program Committee Member for Conferences:**

- IEEE Int. Conf. on Computer Vision, 2007, 2011, 2013
- IEEE Conf. on Computer Vision and Pattern Recognition, 2008, 2011, 2012, 2013

- European Conf. on Computer Vision 2018
- National Conference on Artificial Intelligence 2019
- Asian Conf. on Computer Vision 2016
- Graphics Interface, 2010, 2011, 2012, 2015
- Conf. on Computer and Robot Vision, 2007, 2008, 2009, 2010, 2011, 2015, 2018
- Int. Conf. on Signal Processing and Multimedia Applications 2016, 2017, 2019
- Int. Conf. on Computer-Aided Design and Computer Graphics 2015, 2017
- Int. Conf. on Multimedia Systems and Signal Processing 2017
- Int. Conf. on Smart Multimedia 2018
- Technical Briefs and Poster of SIGGRAPH Asia, 2013, 2014, 2015, 2017
- Pacific-Rim Symp. on Image and Video Technology 2019
- IASTED Int. Conf. on Signal and Image Processing, 2013
- Int. Symp. on Intelligent Systems Technologies and Applications 2018
- IEEE Symp. on Web Society, 2011
- Canadian Conf. on Electrical and Computer Engineering, 2009
- Int. C\* Conf. on Computer Science & Software Engineering, 2009

**Section Chair for Conferences:**

- Graphics Interface, 2010, 2011
- Computer and Robot Vision, 2006
- Artificial Intelligence 2015

**Reviewer for Journals:**

- Transactions on Graphics, ACM
- Transactions on Intelligent Systems and Technology, ACM
- Transactions on Pattern Analysis and Machine Intelligence, IEEE
- Transactions on Visualization and Computer Graphics, IEEE
- Transactions on Circuits and Systems for Video Technology, IEEE
- Transactions on Image Processing, IEEE
- Transactions on Multimedia, IEEE
- Transactions on Signal Processing, IEEE
- Transactions on Broadcasting, IEEE
- Transactions on Neural Networks and Learning Systems, IEEE
- Transactions on Systems, Man and Cybernetics, IEEE
- Signal Processing Letters, IEEE
- International Journal of Computer Vision, Springer
- Journal of Medical Systems, Springer
- Journal of Real-Time Image Processing, Springer
- Machine Vision and Applications, Springer

- Multimedia Systems, Springer
- Neural Computing and Applications, Springer
- Advances in Space Research, Elsevier
- Computer-Aided Design, Elsevier
- Computer Vision and Image Understanding, Elsevier
- Computers & Graphics, Elsevier
- Image and Vision Computing, Elsevier
- Journal of Visual Communication and Image Representation, Elsevier
- Medical Engineering & Physics, Elsevier
- Neurocomputing, Elsevier
- Pattern Recognition, Elsevier
- Pattern Recognition Letter, Elsevier
- Robotics and Autonomous Systems, Elsevier
- Signal Processing: Image Communication, Elsevier
- Computer Graphics Forum, Wiley
- Transactions on Computer Vision and Applications, IPSJ
- International Journal of Image and Graphics, World Scientific
- International Journal of Pattern Recognition and Artificial Intelligence, World Scientific
- Journal of Electronic Imaging, SPIE
- Journal on Image and Video Processing, EURASIP
- Online Information Review, Emerald
- Entropy, MDPI
- The Journal of Ocean Technology, Marine Institute

**Reviewer for Conferences:**

- SIGGRAPH
- SIGGRAPH Asia
- Eurographics
- European Conference on Computer Vision
- IEEE Scientific Visualization
- Eurographics Conference on Visualization
- Eurographics Workshop on Rendering
- Pacific Conference on Computer Graphics and Applications
- International Conference on Pattern Recognition
- IEEE Winter Conference on Applications of Computer Vision
- International Conference on 3D Vision
- Asian Conference on Computer Vision
- Joint Conference on 3D Imaging Modeling Processing Visualization and Transmission
- International Symposium on 3D Data Processing Visualization and Transmission

- Symposium on Geometry Processing
- Shape Modeling International
- Computational Aesthetics
- Computer Science and Electronic Engineering Conference

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- Natural Sciences and Engineering Research Council of Canada (NSERC)
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- Mathematics of Information Technology and Complex Systems (Mitacs)
- Oak Ridge Associated Universities (ORAU)
- Natural Science Foundation of China (NSFC)