

## Dr. Michel Toulouse

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**AFFILIATIONS**    **Senior Lecturer & Program Coordinator**  
*Computer Science Program*  
Vietnamese-German University  
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**Adjunct Professor**  
*Department of Computer Science and Operations Research*  
University of Montréal  
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*Interuniversity Research Centre on Enterprise Networks,  
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**CITIZENSHIP**      Canadian

**RESEARCH**            Parallel and distributed algorithms, combinatorial optimization, search algorithms, complex systems,  
**INTERESTS**            artificial intelligence, network optimization and security

**ACADEMIC**            **University of Montréal**, Montréal, Québec, Canada  
**FORMATION**            Ph.D. in Computer Engineering, École Polytechnique, November 1996

- Dissertation Topic: Study of distributed search heuristics without explicit global control strategies
- Advisors: Teodor G. Crainic and Brunilde Sansó

MSc. in Computer science, Dept. of Computer Science and Operations Research, June 1989

- Dissertation Topic: An algorithm to find the 3-connexe components for general graphs
- Advisors: Gilles Brassard and Odile Marcotte

**SCIENTIFIC  
ACTIVITIES:  
Refereed journal  
publications**

1. Q. M. Tran and M. Toulouse, Multihop Wireless Access Networks for Flood Mitigation Crowdsourcing Systems. Submitted to *Transactions on Large-Scale Data- and Knowledge-centered Systems*.
2. M. Toulouse, H. Le, C. V. Phung and D. Hock, Detecting and Removing Byzantine Attackers in a Consensus-Based Network Intrusion Detection System. Submitted to *Informatica*.
3. T.G. Crainic, M. Hewitt, M. Toulouse and M. Vu Duc, Scheduled Service Network Design with Resource Acquisition and Management. Accepted for *EURO Journal on Transportation and Logistics*.
4. P.K. Nguyen, T.G. Crainic and M. Toulouse, Multi-trip Pickup and Delivery Problem with Time Windows and Synchronization. Accepted in *Annals of Operations Research*.
5. M.A. Tien, F. Bastin and M. Toulouse, On Optimization Algorithms for Maximum Likelihood Estimation. In revision for *Computational Management Science*.
6. P.K. Nguyen, T.G. Crainic and M. Toulouse, A Hybrid Generational Genetic Algorithm for the Periodic Vehicle Routing Problem with Time Windows. *Journal of Heuristics*, Vol. 20, No. 4, 2014, pp. 383-416.
7. T.G. Crainic, M. Hewitt, M. Toulouse and M. Vu Duc, Service Network Design with Resources Constraints. Accepted in *Transportation Science*.
8. P.K. Nguyen, T.G. Crainic and M. Toulouse, A Tabu Search for Time-dependent Multi-zone Multi-trip Vehicle Routing Problem with Time Windows, *European Journal of Operational Research*, Vol. 231, No. 1, 2013, pp. 43-56.
9. M. Vu Duc, T.G. Crainic, M. Toulouse, A Three-phase Matheuristic for Capacitated Multi-commodity Fixed-cost Network Design with Design-balance Constraints. *Journal of Heuristics*, Vol. 19, No. 5, 2013, pp. 757-795.
10. B. Li and M. Toulouse, Maximum Leaf Spanning Tree Problem for Grid Graphs, *Journal of Combinatorial Mathematics and Combinatorial Computing*, Vol. 73, 2010, pp. 181-194.
11. C. Dai, B. Li and M. Toulouse, A Multilevel Cooperative Tabu Search Algorithm for the Covering Design Problem, *Journal of Combinatorial Mathematics and Combinatorial Computing*, Vol. 68, 2009, pp 33-65.
12. I. Oduntan, M. Toulouse, R. Baumgartner, C. Bowman, R. Somorjai and T. Crainic, A Multilevel Tabu Search Algorithm for the Feature Selection Problem in Biomedical Data, *Computers & Mathematics with Applications*, Vol. 55, No. 5, March 2008, pp. 1019-1033.
13. B. Li and M. Toulouse, Variations of the Maximum Leaf Spanning Tree Problem for Bipartite Graphs, *Information Processing Letters*, Vol. 97, No. 4, February 2006, pp. 129-132.
14. T.G. Crainic, Y. Li and M. Toulouse, A First Multilevel Cooperative Algorithm for the Capacitated Multicommodity Network Design, *Computer & Operations Research*, Vol. 33, No. 9, September 2006, pp. 2602-2622.
15. B. Li and M. Toulouse, Some NP-Completeness Results on Partial Steiner Triple Systems and Parallel Classes, *Ars Combinatoria*, Vol. 80, July 2006, pp. 45-51.
16. M. Toulouse, T.G. Crainic and B. Sansó, Systemic Behavior of Cooperative Search Algorithms, *Parallel Computing*, Vol. 21, No. 1, January 2004, pp. 57-79.
17. M. Ouyang, M. Toulouse, K. Thulasiraman, F. Glover and J.S. Deogun, Multilevel Cooperative Search for the Circuit/Hypergraph Partitioning Problem, *IEEE Transactions on Computer-Aided Design and Integrated Circuits and Systems*, Vol. 21, No. 6, June 2002, pp. 685-693.
18. M. Toulouse and T.G. Crainic and K. Thulasiraman, Global Optimization Properties of Parallel Cooperative Search Algorithms: A Simulation Study, *Parallel Computing*, Vol. 26, No. 1, January 2000, pp. 91-112.
19. T.G. Crainic, M. Toulouse and M. Gendreau, Towards a Taxonomy of Parallel Tabu Search Heuristics, *INFORMS Journal of Computing*, Vol. 9, No. 1, January 1997, pp. 61-72.

20. T.G. Crainic, M. Toulouse and M. Gendreau, Parallel Asynchronous Tabu Search for Multi-commodity Location-Allocation with Balancing Requirements, *Annals of Operations Research*, Vol. 63, No. 2, April 1996, pp. 277-299.
21. T.G. Crainic, M. Toulouse and M. Gendreau, Synchronous Tabu Search Parallelization Strategies for Multicommodity Location-Allocation with Balancing Requirements, *OR Spektrum*, Vol. 17, No. 2-3, June 1995, pp. 113-123.
22. J. Desbiens, M. Lavoie, S. Pouzyreff, P. Raymond, T. Tamazouzt and M. Toulouse, CLAP: an Object-Oriented Programming System for Distributed Memory Parallel Machines, *ACM SIGPLAN OOPS Messenger*, Vol. 5, No.1, 1994, pp. 44-48.
23. T.G. Crainic, M. Gendreau, P. Soriano and M. Toulouse, A Tabu Search Procedure for Multi-commodity Location/Allocation with Balancing Requirements, *Annals of Operations Research*, Vol. 41, No. 4, December 1993, pp. 359-383.
24. J. Desbiens, M. Lavoie, S. Pouzyreff, P. Raymond, T. Tamazouzt and M. Toulouse, CLAP: Un système de programmation objet pour machines parallèles à mémoire distribuée (CLAP: an Object-Oriented Programming Environment for Distributed Memory Parallel Systems), *ICO Québec*, Vol. 5, No. 2, 1993, pp. 27-37.

**Refereed  
conferences  
publications**

25. M. Toulouse, An Network Intrusion Detection Scheme based on Exact Consensus and Defense against Byzantine Attacks. In preparation.
26. C. V. Phung, Q. M. Tran and M. Toulouse, Routing Optimization Model in Multihop Wireless Access Networks for Disaster Recovery. The 10th International Conference on Advanced Computing and Applications, Can Tho City, Vietnam, November 23-25, 2016.
27. M. Toulouse, H. Le, C. V. Phung and D. Hock, Robust Consensus-Based Network Intrusion Detection in Presence of Byzantine Attacks, The Seventh International Symposium on Information and Communication Technology, Ho Chi Minh City, December 8-9, 2016.
28. T. G. Crainic, P. K. Nguyen and M. Toulouse, Synchronized Multi-zone Multi-trip Multi-traffic Pickup and Delivery in City Logistics. The 9th International Conference on City Logistics, Tenerife, Canary Islands (Spain), June 17-19, 2015. Published in *Transportation Research Procedia*, Vol. 12, 2016, pp. 26-39.
29. M. Toulouse, M.B. Quang, P. Curtis, A Consensus Based Network Intrusion Detection System. The 5th International Conference on IT Convergence and Security (ICITCS2015), Kuala Lumpur, Malaysia, August 24-27, 2015.
30. B. Jaumard, K. Do Trung, M. Toulouse, A Distributed p-Cycle Scheme for Protection in Multi-Domain Optical Networks. IEEE Global Communication Conference (GLOBECOM 2012), ISBN:978-1-4673-0921-9, Dec. 3-7, pp. 3019-3026.
31. B. Jaumard, K. Do Trung, M. Toulouse, p-Cycle Based Protection Mechanisms in Optical Multi-Domain Networks. The Fourth International Conference on Communications and Electronics (ICCE 2012), ISBN:978-1-4673-2492-2, August 1-3, pp. 19-24.
32. G. S. Sharma, M. Toulouse, D. L. Truong, An Improved Distributed Routing Protocol for Multi-Domain Optical Networks using Topology Aggregation. Third Conference on Theoretical and Applied Computer Science (TACS 2012), Oklahoma State University, Feb. 17, 2012. [http://cs.okstate.edu/tacs12/tacs2012\\_submission\\_10.pdf](http://cs.okstate.edu/tacs12/tacs2012_submission_10.pdf)
33. P. Prakasam, M. Toulouse, T.G. Crainic and R. Qu, A Multilevel Cooperative Search Algorithm for the Graph Coloring Problem, Learning and Intelligent Optimization Conference, LION (III) 2009, Jan. 14-18, 2009, Trento, Italy (Extended abstract)
34. T.G. Crainic and M. Toulouse, Explicit and Emergent Cooperation Schemes for Search Algorithms, Learning and Intelligent Optimization Conference, LION (II) 2007, December 8-13, 2007 - Trento, Italy. Published in *Lecture Notes in Computer Science*, # 5315, 2008, pp. 95-109.

35. E. Liu, J. Wang, M. Kwok, J. Diamond, M. Toulouse and D. Cheriton, FPS Game Performance in Wi-Fi Networks, The Fourth Annual International Conference in Computer Game Design and Technology (GDTW 2006), Liverpool, England, November 15th - 16th 2006 (Conference Best Paper Award).
36. E. Liu, J. Wang, M. Kwok, J. Diamond and M. Toulouse, Capability of IEEE 802.11g Networks in Supporting Multi-player Online Games, 2nd IEEE International Workshop on Networking Issues in Multimedia Entertainment (NIME'06), Las Vegas, Nevada, January 7-10, 2006.
37. C. Dai, B. Li and M. Toulouse, A Cooperative Multilevel Tabu Search Algorithm for the Covering Design Problem, Artificial Evolution, 7th International Conference on Artificial Evolution, Lille, France, October 26-28, 2005, pp. 119-130.
38. J. Diamond, S. Camorlinga, P. Zhou, M. Toulouse and E. Liu, Archive Planning for a Metropolitan PACS Network, Proceedings of the 22nd Meeting of the Society for Computer Applications in Radiology Conference (SCAR 2005), Orlando Florida, USA. June 2-5, 2005.
39. N. Kadaba, P. Irani and M. Toulouse, Visualizing Time Dependent Semantics: An Application to Quantum Algorithms, London, UK, July 5-9, 2005. Published in Proceedings of the Ninth International Conference on Information Visualisation, ISBN ISSN:1550-6037, 0-7695-2397-8, pp. 182-187.
40. K. Subramoniam, M. Maheswaran and M. Toulouse, Towards a Micro-Economic Model for Resource Allocation in Grid Computing Systems, IEEE Canadian Conference on Electrical & Computer Engineering (CCECE'02), May 12-15, 2002 (IEEE CCECE02 Proceedings, ISBN: 0-7803-7514-9; vol. 2, pp. 782-785).
41. C. Chen, M. Maheswaran and M. Toulouse, On Bid Selection Heuristics for Real-Time Auctioning for Wide-Area Network Resource Management, 2001 International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA 2001), Las Vegas, June 25-28, 2001.
42. M. Ouyang, M. Toulouse, K. Thulasiraman, F. Glover and J.S. Deogun, Multi-Level Cooperative Search: Application to the Circuit/Hypergraph Partitioning Problem, International Symposium on Physical Design, San Diego, CA, ACM Press, April 9-12 2000, pp. 192-198.
43. M. Toulouse, K. Thulasiraman and F. Glover, Multi-Level Cooperative Search: A new Paradigm for Combinatorial Optimization and an Application to Graph Partitioning. *5th International Euro-Par Parallel Processing Conference*. Published in *Lecture Notes in Computer Science*, # 1685, 1999, pp. 533-542.
44. M. Toulouse, T.G. Crainic and B. Sansó, An Experimental Study of Systemic Behavior of Cooperative Search Algorithms, *Meta-Heuristics: Advances and Trends in Local Search Paradigms for Optimization*, Kluwer Academic Publishers, 1999, pp. 373-392.
45. M. Toulouse, T.G. Crainic, B. Sansó and K. Thulasiraman, Self-Organization in Cooperative Tabu Search Algorithms, *1998 IEEE International Conference on Systems, Man, and Cybernetics*, San Diego, U.S.A., Omnipress, Oct. 11-14 1998, pp. 2379-2385.
46. M. Toulouse, T.G. Crainic and M. Gendreau, Communication Issues in Designing Cooperative Multi-Thread Parallel Searches, *Meta-Heuristics: Theory and Applications*, Kluwer Academic Publishers, Norwell MA, 1996, pp. 501-522.
47. M. Toulouse and J. Desbiens, Protocole mixte de cohérence de données pour un système Acteur fonctionnant sur une mémoire virtuelle partagée (Mixed Data Consistency Protocol for an Actor System Based on a Distributed Shared Memory), in: *Actes de la 7ème Rencontres francophones du Parallélisme*, Mons, Belgium, 1995, pp. 92-95.
48. M. Toulouse, J. Desbiens and J. Zhang, Épidaure: un système basé sur le concept de segments d'acteurs (Épidaure: A Programming Environment Based on the Concept of Actor Segments), in: *Actes de la 6ème Rencontres francophones du Parallélisme*, Lyon, France, 1994, pp. 197-200.

49. J. Desbiens, M. Toulouse, M. Lavoie, S. Pouzyreff, P. Raymond and T. Tamazouzt, An Actor Based Programming System for Heterogeneous Processing, *6th International Parle Conference*, Athens, Greece, Published in *Lecture Notes in Computer Science*, # 817, 1994, pp. 753-756.
50. J. Desbiens, M. Lavoie, S. Pouzyreff, P. Raymond, T. Tamazouzt and M. Toulouse, CLAP: an Object-Oriented Programming System for Distributed Systems, *International Conference on Parallel Computing, Parco'93*, Grenoble, France, Sept. 1993, Published in *Parallel Computing: Trends and Applications*, North-Holland Publishers, 1994, pp. 601-604.

**Publications in book chapters**

51. T.G. Crainic and M. Toulouse, Parallel Metaheuristics, in *Handbook of Metaheuristics*, Second Edition, M.Gendreau, J.-Y. Potvin (Eds.), Springer, 2010, pp. 497-543.
52. T.G. Crainic and M. Toulouse, Parallel Strategies for Metaheuristics, in *Handbook of Metaheuristics*, F. Glover, G. Kochenberger (Eds.), Kluwer Academic Publishers, 2003, pp. 475-513.
53. T.G. Crainic and M. Toulouse, Parallel Metaheuristics, *Fleet Management and Logistics*, T.G. Crainic, G. Laporte editors, Kluwer Academic, Norwell MA, 1998, pp. 205-251.

**Book:**

54. T.G. Crainic and M. Toulouse, *Parallel and Distributed Search Heuristics*, Kluwer Academic Publishers, In preparation.

**Book review:**

55. Lee Spector, Automatic Quantum Computer Programming: A Genetic Programming Approach, *Genetic Programming and Evolvable Machines*, Vol. 7 No. 1, 2006, pp. 125-126.

**Communications at conferences: first author speaker**

56. T. G. Crainic, P. K. Nguyen and M. Toulouse, Synchronized Multi-trip Multi-traffic Pickup and Delivery in City Logistics, Sixth International Workshop on Freight Transportation and Logistics (ODY SSEUS 2015), Ajaccio, France, May 31 to June 5, 2015.
57. M. Toulouse, P. Curtis, Intrusion Detection in Computer Networks: A Consensus-Based Approach, 5th GAST Travelling Conference, IT Security, Ho Chi Minh City - Bangkok - Singapore, Ho Chi Minh City, Oct. 27 2014, Bangkok, Oct. 29 2014, Singapore, Oct. 31 2014.
58. T.G. Crainic, M. Hewitt, M. Toulouse, M. Vu Duc, Integrated location - service network design, *The XIII Edition of the International Symposium On Locational Decision*, Naples and Capri, Italy, June 16-20, 2014.
59. T.G. Crainic, P.K. Nguyen and M. Toulouse, Meta-heuristics for Synchronized Multi-zone Multi-trip Pickup and Delivery Problems, *International Workshop on Vehicle Routing and Intermodal Transportation*, Comwell Borupgaard, Snekersten, Denmark, June 1-4, 2014.
60. P. K. Nguyen, T.G. Crainic and M. Toulouse, A Tabu Search for the Multi-zone Multi-trip Pickup and Delivery Problem with Time Window and Synchronization, *Optimization Days 2014*, Montréal, May 5-7, 2014.
61. M. Vu Duc, T.G. Crainic, M. Hewitt and M. Toulouse, Integrated Location - Service Network Design, *Optimization Days 2014*, Montréal, May 5-7, 2014.
62. T.G. Crainic, P.K. Nguyen and M. Toulouse, A Meta-heuristic for Multi-zone Multi-trip Pickup and Delivery Problem with Time Windows and Synchronization, *2013 INFORMS Annual Meeting at Minneapolis*, October 6-9, 2013.
63. T.G. Crainic, P.K. Nguyen and M. Toulouse, Meta-heuristics for Time-dependent Multi-zone Multi-trip Vehicle Routing Problems with Time Windows, The 10th edition of the Metaheuristics International Conference (MIC 2013), Singapore, August 5 - 8, 2013.
64. P.K. Nguyen, T.G. Crainic and M. Toulouse, The Multi-zone Multi-trip Pickup and Delivery Problem with Time Windows and Synchronization, *Optimization Days 2013*, Montréal, May 6-8, 2013.

65. P.K. Nguyen, T.G. Crainic and M. Toulouse, A Metaheuristic for the Multi-zone Multi-trip Vehicle Routing Problem with Time Windows, 10th International Conference on Computational Management, Montréal, Canada, May 1 - 3, 2013.
66. F. Bastin, M.A. Tien and M. Toulouse, On the Combination of Hessian Approximations for Data Estimation, The 21st International Symposium on Mathematical Programming (ISMP), Berlin, Germany, August 19 - 24, 2012.
67. P.K. Nguyen, T.G. Crainic and M. Toulouse, A Tabu Search for the Time-Dependent Multi-zone Multi-trip Vehicle Routing Problem with Time Windows. The First Meeting of the EURO Working Group on Vehicle Routing and Logistics Optimization (VeRoLog), Bologna, Italy June 18 to 20, 2012.
68. M.A. Tien, F. Bastin and M. Toulouse, Revisiting Optimization Algorithms for Maximum Likelihood Estimation, Optimization Days 2012, Montréal, May 7-9, 2012.
69. D. M. Vu, T.G. Crainic and M. Toulouse, Service Network Design with Resources Constraints, Optimization Days 2012, Montréal, May 7-9, 2012.
70. P. K. Nguyen, T.G. Crainic and M. Toulouse, A Tabu Based Local Search for Time-dependent Multi-zone Multi-trip Vehicle Routing Problem with Time Windows, Optimization Days 2012, Montréal, May 7-9, 2012.
71. D. M. Vu, T.G. Crainic and M. Toulouse, A Solution Framework for the Capacitated Multi-Commodity Fixed-Cost Network Design with Design-Balance Constraints, Optimization Days 2011, Montréal, May 2-4, 2011.
72. T.G. Crainic, P.K. Nguyen and M. Toulouse, A Hybrid Genetic Algorithm for the Periodic Vehicle Routing Problem with Time Windows, Twelve Annual Congress of ROADEF (Société Française de Recherche Opérationnelle et d'Aide à la Décision), St-Etienne, France, March 2-4 2011.
73. P. K. Nguyen, T.G. Crainic and M. Toulouse, A Hybrid Genetic Algorithm for the Periodic Vehicle Routing Problem with Time Windows, Optimization Days 2010, Montréal, May 10-12, 2010.
74. M. Toulouse and T.G. Crainic, Self-Assembly/Behavior-Based Programming for Cooperative Search Algorithms, CORS / Optimization Days 2008, Québec, May 12-14, 2008.
75. M. Toulouse and T.G. Crainic, Multilevel Self-Assembling Transformation Rules Enable by Cooperative Search, The Seventh Metaheuristics International Conference Montréal, June 25-29, 2007 (Short paper).
76. E.D. Taillard, M. Laurent, M. Toulouse and T.G. Crainic, Parallel Noising Methods Embedded in an Adaptive Memory, The Seventh Metaheuristics International Conference Montréal, June 25-29, 2007 (Short paper).
77. M. Toulouse, I. Oduntan, R. Baumgartner, C. Bowman and R. Somorjai, A Multilevel Tabu Search Algorithm for Feature Selection in Biomedical Data, CORS / Optimization Days 2006, Montréal, May 8-10, 2006.
78. T.G. Crainic and M. Toulouse, Feature Selection and Parallel Meta-heuristics, FIMA International Conference, "Models and Methods for Human Genomics", Ayas-Champoluc, Aosta Valley (Italy), January 23-27, 2006.
79. M. Toulouse, I. Oduntan, R. Baumgartner, C. Bowman and R. Somorjai, A Multilevel Tabu Search Algorithm for Classification of Biomedical Data, *2005 Annual Meeting of the Canadian Applied and Industrial Mathematics Society (CAIMS 2005)*, June 16-18, 2005.
80. M. Toulouse, Multilevel Cooperative Search, Forth International Workshop of the EURO Working Group on Parallel Processing in Operations Research (PAREO), Mont-Tremblant (Montréal), Canada, January 16-21, 2005.

81. J. Diamond, S. Camorlinga, P. Zhou, M. Toulouse and E. Liu, Archive Planning for a Metropolitan PACS Network, Proceedings of the 22nd Meeting of the Society for Computer Applications in Radiology Conference (SCAR 2005), Orlando Florida, USA. June 2-5, 2005.
82. M. Toulouse and T.G. Crainic, Perspectives on Multilevel Meta-Heuristics, *2004 INFORMS Annual Meeting at Denver*, October 24-27, 2004.
83. I. Oduntan, R. Baumgartner, C. Bowman, R. Somorjai and M. Toulouse, Feature Selection Using a Multi-level Approach, *2004 INFORMS Annual Meeting at Denver*, October 24-27, 2004.
84. T.G. Crainic, Y. Li and M. Toulouse, Multilevel, Cooperative Parallel Search, Network Design, *2004 INFORMS Annual Meeting at Denver*, October 24-27, 2004.
85. T.G. Crainic, Y. Li and M. Toulouse, A Multilevel Cooperative Parallel Tabu Search for Network Design, *CORS/INFORMS Joint Meeting*, Banff, Alberta, May 16-19, 2004.
86. M. Xu, T.G. Crainic and M. Toulouse, A Parallel Cooperative Search Approach for Negotiation in Distributed Combinatorial Markets, *CORS/INFORMS Joint Meeting*, Banff, Alberta, May 16-19, 2004.
87. C. Dai, B. Li and M. Toulouse, Constructing Covering Designs using Parallel Tabu Search, *CORS/INFORMS Joint Meeting*, Banff, Alberta, May 16-19, 2004.
88. M. Toulouse, T.G. Crainic and E. Guillemot, A Cooperative Multilevel Tabu Search Algorithm for the Hypergraph, *2003 INFORMS Annual Meeting at Atlanta*, October 19-22, 2003.
89. T.G. Crainic, Y. Li and M. Toulouse, A Cooperative Multilevel Parallel Tabu Search for Network Design, *2003 INFORMS Annual Meeting at Atlanta*, October 19-22, 2003.
90. C. Chen, M. Maheswaran and M. Toulouse, Supporting Co-allocation in an Auctioning-based Resource Allocator for Grid Systems, Proceedings of the International Parallel and Distributed Processing Symposium (IPDPS'02), April 15th, 2002.
91. M. Toulouse and T.G. Crainic, Survey of Parallel Metaheuristics, *Adaptive Memory and Evolution: Tabu Search and Scatter Search*, University of Mississippi, March 8-10, 2001.
92. M. Toulouse, M. Ouyang, K. Thulasiraman, F. Glover and J.S. Deogun, Multi-Level Cooperative Search, *PAREO 2000 Meeting*, Second international Workshop of the PAREO working group on Parallel Processing in Operations Research, Paderborn, Germany, June 14-16, 2000.
93. M. Toulouse, M. Ouyang, K. Thulasiraman, F. Glover and J.S. Deogun, Multi-Level Cooperative Search: Application to Hypergraphs, *2000 INFORMS Meeting at Salt Lake City*, Utah, May 7-10, 2000.
94. T.G. Crainic and M. Toulouse, Parallel Metaheuristics. Tutorial. *Parallel Processing in Operations Research*, Versailles, France, July 8-10, 1998.
95. M. Toulouse and T.G. Crainic, Parallel Metaheuristics. Tutorial. *1998 INFORMS Meeting in Montréal*, Canada, April 26-29, 1998.
96. M. Toulouse, A. Das and T.G. Crainic, Can Self-Organization Improve Response Time of Self-Healing Capabilities in Telecommunication Networks. *1998 INFORMS Meeting in Montréal*, Canada, April 26-29, 1998.
97. M. Toulouse, K. Thulasiraman and F. Glover, A Parallel Vocabulary Building Metaheuristic for Graph Partitioning. *1998 INFORMS Meeting in Montréal*, Canada, April 26-29, 1998.
98. M. Toulouse, Cooperative Parallel Search: Impacts of Information Sharing, *1997 INFORMS Meeting in Dallas*, October 26-29, 1997.
99. T.G. Crainic, M. Toulouse and G. Gendreau, Global Memories, Parallel Tabu Search and Network Design, *1997 INFORMS Meeting in Dallas*, October 26-29, 1997.
100. T.G. Crainic, M. Gendreau and M. Toulouse, Network Design, Tabu Search, Parallel Computing, Multi-threads cooperative strategies, *International Symposium on Mathematical Programming*, Lausanne, Switzerland, August 24-29, 1997.

101. M. Toulouse and T.G. Crainic, Self-Organization Behavior of Interacting Multiple Walks, *1997 Joint International Meeting of EURO and INFORMS*, Barcelona, Spain, July 14-17, 1997.
102. M. Toulouse, Self-Organization Behavior of Cooperative Search, *1997 INFORMS Meeting in San Diego*, May 4-7, 1997.
103. T.G. Crainic, M. Toulouse and G. Gendreau, Parallel Metaheuristics with Applications to Network Design, *Colloquium on Fleet Management and Logistics*, Montréal, Canada, February 27-28, 1997 (Invited paper).
104. M. Toulouse, T.G. Crainic and M. Gendreau, A Model for Parallel Tabu Search, *IFORS 96*, Vancouver, Canada, July 8-12, 1996.
105. M. Toulouse, T.G. Crainic and M. Gendreau, Speculative Aspects of Parallel Algorithms for Optimization Problems, *Journées d'Optimisation 1996 / Optimization Days 1996*, Montréal, Canada, May 13-15, 1996.
106. M. Toulouse, T.G. Crainic and M. Gendreau, Cooperative Parallel Tabu Search Strategies: The Case of the Fixed Charge Multicommodity Capacitated Network Flow Problem, *Parallel Optimization Colloquium 96*, Versailles, France, March 25-27, 1996.
107. T.G. Crainic, M. Toulouse, M. Gendreau and E. Taillard, Experimenting with Parallel Tabu Search, *INFORMS Fall National Meeting*, Los Angeles (CA), October 29 - November 1, 1995.
108. M. Toulouse, T.G. Crainic and M. Gendreau, Designing Rail Services: An "Academic" Research Perspective, *Service Design and Management in Railroad Operations*, Philadelphia, July 17-18, 1995.
109. M. Toulouse, T.G. Crainic and M. Gendreau, Parallel Multi-Thread Tabu Search Approaches, *Journées d'Optimisation 1995 / Optimization Days 1995*, Montréal, Canada, May 10-12, 1995.
110. T.G. Crainic, M. Toulouse and M. Gendreau, Cooperating Multi-Thread Parallelism for Tabu Search, *INFORMS Spring National Meeting*, Los Angeles (CA), April 23-26, 1995.
111. M. Toulouse, T.G. Crainic and M. Gendreau, Asynchronous Parallel Tabu Search Algorithms, *Joint Meeting of the Annual Conference of the Canadian Operational Research Society and Optimization Days 1994*, Montréal, Canada, June 1994.
112. T.G. Crainic, M. Toulouse and M. Gendreau, An Appraisal of Asynchronous Parallelization Approaches for Tabu Search Algorithms, *Joint Meeting of the Annual Conference of the Canadian Operational Research Society and Optimization Days 1994*, Montréal, Canada, June 1994.
113. M. Toulouse and T.G. Crainic, Parallel Tabu Search for Network Design, *TIM/ORSA Joint National Meeting*, Boston, 1994.
114. M. Toulouse and T.G. Crainic, Asynchronous Parallel Tabu Search for the Network Design Problem, *Mathematical Programming*, Summer 1994, U.S.A.
115. T.G. Crainic, M. Gendreau and M. Toulouse, Analysis and Comparison of Various Implementations of Parallel Tabu, *TIMS/ORSA Joint National Meeting*, Chicago (IL), May 16-19, 1993.
116. T.G. Crainic, M. Gendreau, P. Soriano and M. Toulouse, Tabu Search Heuristics for Location Problems, *IFORS 93, XIII World Conference on Operations Research*, Lisbon, Portugal, July 12-16, 1993.
117. T.G. Crainic, M. Gendreau, J.M. Farvolden and M. Toulouse, Tabu Search Approaches for the Fixed Charge Network Design Problem, *IFORS 93, XIII World Conference on Operations Research*, Lisbon, Portugal, July 12-16, 1993.
118. J. Desbiens, M. Toulouse and D. Gagne, CLAP: Une implantation du modèle Acteur sur réseau hétérogène (CLAP: an Implementation of the Actor Model on a Heterogeneous Network of Workstations), *1993 DND Workshop on Advanced Technologies in Knowledge Based Systems and Robotics*, Ottawa, Canada, November 1993.

119. M. Toulouse, An asynchronous Parallel algorithm for Tabu Search Applied to a Localization Problem, *Journées d'Optimisation 1993 / Optimization Days 1993*, Montréal, Canada, May 12-14, 1993.
120. T.G. Crainic, M. Toulouse and M. Gendreau, Toward a Taxonomy of Parallel Tabu Search Algorithms, *Journées d'Optimisation 1993 / Optimization Days 1993*, Montréal, Canada, May 12-14, 1993.
121. T.G. Crainic, M. Gendreau, B. Gendron and M. Toulouse, Parallel Algorithms for Location Problems with Balancing Requirements, *Journées d'Optimisation 1993 / Optimization Days 1993*, Montréal, Canada, May 12-14, 1993.
122. T.G. Crainic, M. Gendreau and M. Toulouse, Analysis and Comparison of Various Implementations of Parallel Tabu Search, *TIMS-ORSA Meeting*, Chicago, May 1993.
123. T.G. Crainic, M. Gendreau and M. Toulouse, A Parallel Tabu Search Heuristic for Location/Allocation with Balancing Requirements, *TIM/ORSA Joint National Meeting*, Orlando, Florida, April 26-28, 1992.
124. T.G. Crainic, M. Gendreau and M. Toulouse, A Parallel Tabu Search Heuristic for Location/Allocation with Balancing Requirements, *Journées d'Optimisation 1992 / Optimization Days 1992*, Montréal, Canada, May 4-6, 1992.
125. T.G. Crainic, M. Gendreau, P. Soriano and M. Toulouse, Tabu Search Applied to Location-Allocation Problems with Balancing Requirements, *11th European Congress on Operational Research*, Aachen, Germany, 1991.
126. T.G. Crainic, M. Gendreau, P. Soriano and M. Toulouse, An Application of Tabu Search to the Planning of Land Container Transportation, *TIMS/ORSA Joint National Meeting*, Anaheim (CA), November 3-6, 1991.
127. T.G. Crainic, M. Gendreau, P. Soriano and M. Toulouse, Tabu Search Applied to Location-Allocation Problems with Balancing Requirements, *Triennial Symposium on Transportation Analysis (TRISTAN)* Montréal, Canada, June 1991.
128. T.G. Crainic, M. Gendreau, P. Soriano and M. Toulouse, Tabu Search Applied to Location-Allocation Problems with Balancing Requirements, *Journées d'Optimisation 1991 / Optimization Days 1991*, Montréal, Canada, May 8-9, 1991.

**Invited speaker**

129. M. Toulouse, Intrusion detection in computer networks, Faculty of ICT, Mahidol University, Bangkok, Thailand, Feb. 2015.
130. M. Toulouse, A Hybrid Genetic Algorithm for the Periodic Vehicle Routing Problem with Time Windows, Conference on Theoretical and Applied Computer Science (TACS'10), Oklahoma State University, November 2010.
131. M. Toulouse, A cooperation/diffusion framework for search algorithms, School of Computer Science, University of Nottingham, July 2008.
132. M. Toulouse, Overview of the Multilevel Cooperative Search Paradigm, Center for Research on Transportation, Université de Montréal, April 2007.
133. M. Toulouse, Genetic Algorithms: Applications. Discrete Mathematics Seminars, Department of Mathematics, University of Manitoba, October 2003.
134. M. Toulouse, Genetic Algorithms: Theory & Models. Discrete Mathematics Seminars, Department of Mathematics, University of Manitoba, October 2003.
135. M. Toulouse, Understanding Dynamical Computing: the Case of a Multilevel System for Graph Partitioning. Dept. of Mathematic and Informatic, University of Paderborn, Germany, October 2000.
136. M. Toulouse, Multilevel Cooperative Search for the Circuit/Hypergraph Partitioning Problem. Dept. of Computer Science, UCLA, USA, August 2000.

137. M. Toulouse, Emergent Computation: Parallelization of Search Algorithms in OR & AI. Discrete Mathematics Seminars, Department of Mathematics, University of Manitoba, October 1999.
138. M. Toulouse, Calcul émergent: une application aux algorithmes parallèles de recherche (Emergent Computation: an Application to Parallel Search Algorithms). Department of Computer Science & Operations Research, Université de Montréal, November 1999.
139. M. Toulouse, A Multi-Level Cooperative Search Algorithm and its Application to the Graph Partitioning. School of Industrial Engineering, INFORMS OU-Student Chapter, University of Oklahoma, April 1997.
140. M. Toulouse, Les algorithmes de recherche tabou parallèles (Parallel Tabu Search Algorithms). Laboratoire d'Informatique et de Mathématiques Appliquées de Valenciennes, Université de Valenciennes, France, June 1994.
141. M. Toulouse, CLAP: un système d'acteurs pour machine parallèle à mémoire distribuée (CLAP: An Acteur System for Distributed Memory Parallel Systems). Defense Research Establishment Valcartier (DREV), Québec, Canada, February 1993.

**Technical reports**

142. T.G. Crainic, M. Hewitt, M. Toulouse and M. Vu Duc, Scheduled Service Network Design with Resource Acquisition and Management, *Technical Report*, CIRRELT, CIRRELT-2016-50, 2016.
143. T.G. Crainic, M. Hewitt, M. Toulouse and M. Vu Duc, Location and Service Network Design, *Technical Report*, CIRRELT, CIRRELT-2015-45, 2015.
144. P.K. Nguyen, T.G. Crainic, M. Toulouse, Multi-Trip Pickup and Delivery Problem with Time Windows and Synchronization, *Technical Report*, CIRRELT, CIRRELT-2015-11, 2015.
145. T.G. Crainic, P.K. Nguyen, M. Toulouse, Synchronized Multi-Trip Multi-Traffic Pickup and Delivery in City Logistics, *Technical Report*, CIRRELT, CIRRELT-2015-5, 2015.
146. Mai A.T., Bastin Fabian, Toulouse Michel, On Optimization Algorithms for Maximum Likelihood Estimation, *Technical Report*, CIRRELT, CIRRELT-2014-64, 2014.
147. P.K. Nguyen, T.G. Crainic, M. Toulouse, Multi-zone Multi-trip Pickup and Delivery Problem with Time Windows and Synchronization, *Technical Report*, CIRRELT, CIRRELT-2014-18, 2014.
148. P.K. Nguyen, T.G. Crainic, M. Toulouse, A Hybrid Generational Genetic Algorithm for the Periodic Vehicle Routing Problem with Time Windows, *Technical Report*, CIRRELT, CIRRELT-2012-66, 2012.
149. T.G. Crainic, M. Hewitt, M. Toulouse and M. Vu Duc, Service Network Design with Resources Constraints, *Technical Report*, CIRRELT, CIRRELT-2012-63, 2012.
150. P.K. Nguyen, T.G. Crainic, M. Toulouse, A Tabu Based Local Search for Time-dependent Multi-zone Multi-trip Vehicle Routing Problem with Time Windows, *Technical Report*, CIRRELT, CIRRELT-2012-44, 2012.
151. M. Vu Duc, T.G. Crainic and M. Toulouse, A Three-stage Metaheuristic for the Capacitated Multi-commodity Fixed-cost Network Design with Design-balance Constraints, *Technical Report*, CIRRELT, CIRRELT-2012-21, 2012.
152. P.K. Nguyen, T.G. Crainic, M. Toulouse, A Hybrid Genetic Algorithm for the Periodic Vehicle Routing Problem with Time Windows, *Technical Report*, CIRRELT, CIRRELT-2011-25, 2011.
153. P. Prakasam, M. Toulouse, T.G. Crainic and R. Qu, Design of a Multilevel Cooperative Heuristic for the Graph Coloring Problem, *Technical Report*, CIRRELT, CIRRELT-2009-33, 2009.
154. T.G. Crainic and M. Toulouse, Parallel Metaheuristics, *Technical Report*, CIRRELT, CIRRELT-2009-22, 2009.

155. T.G. Crainic and M. Toulouse, Explicit and Emergent Cooperation Schemes for Search Algorithms, *Technical Report*, CIRRELT, CIRRELT-2008-04, 2008.
156. C. Dai, B. Li and M. Toulouse, A Multilevel Cooperative Tabu Search Algorithm for the Covering Design Problem, *Technical Report*, CRT-2006-25, Centre for Research on Transportation, Montréal, 2006.
157. I. Oduntan, M. Toulouse, R. Baumgartner, C. Bowman and R. Somorjai, A Multilevel Tabu Search Algorithm for the Classification of Biomedical Data, *Technical Report*, CRT-2006-19, Centre for Research on Transportation, Montréal, 2006.
158. T.G. Crainic, Y. Li and M. Toulouse, A Simple Cooperative Multilevel Algorithm for the Capacitated Multicommodity Network Design, *Technical Report*, CRT-2004-06, Centre for Research on Transportation, Montréal, 2004.
159. T.G. Crainic and M. Toulouse, Parallel Strategies for Meta-Heuristics, *Technical Report*, CRT-2001-06, Centre for Research on Transportation, Montréal, 2001.
160. C. Chen, M. Maheswaran, and M. Toulouse, Computation Market: An Online Auction for Wide-Area Network Computing Systems, Technical Report TR-CS-01-10, Department of Computer Science, University of Manitoba, 2000.
161. M. Toulouse, T.G. Crainic and K. Thulasiraman, Global Optimization Properties of Parallel Cooperative Search Algorithms: a Simulation Study, *Technical Report*, CRT-98-42, Centre for Research on Transportation, Montréal, 1998.
162. M. Toulouse, T.G. Crainic, B. Sansó, K. Thulasiraman, Self-Organization in Cooperative Tabu Search Algorithms, *Technical Report*, CRT-98-34, Centre for Research on Transportation, Montréal, 1998.
163. M. Toulouse, T.G. Crainic, and B. Sansó, Systemic Behavior of Cooperative Search Algorithms, *Technical Report*, CRT-97-55, Centre for Research on Transportation, Montréal, 1997.
164. M. Toulouse, T.G. Crainic, Parallel Metaheuristics *Technical Report*, CRT-97-50, Centre for Research on Transportation, Montréal, 1997.
165. M. Toulouse, T.G. Crainic, and B. Sanso, An Experimental Study of Systemic Behavior of Cooperative Search Algorithms, *Technical Report*, CRT-97-26, Centre for Research on Transportation, Montréal, 1997.
166. M. Toulouse, Étude d'heuristiques distribuées de recherche sans contrôle global explicite (Study of Cooperative Distributed Search Heuristics with Self-Control Behaviors), *Technical Report*, CRT-96-50, Centre for Research on Transportation, Montréal, 1996.
167. M. Toulouse, T.G. Crainic and M. Gendreau, Issues in Designing Parallel and Distributed Search Algorithms for Discrete Optimization Problems, *Technical Report*, CRT-96-34, Centre for Research on Transportation, Montréal, 1996.
168. M. Toulouse, T.G. Crainic, and M. Gendreau, Communication Issues in Designing Cooperative Multi-Thread Parallel Searches, *Technical Report*, CRT-95-47, Centre for Research on Transportation, Montréal, 1995.
169. T.G. Crainic, M. Toulouse and M. Gendreau, Towards a Taxonomy of Parallel Tabu Search Algorithms, *Technical Report*, CRT-933, Centre for Research on Transportation, Montréal, 1993.
170. T.G. Crainic, M. Toulouse and M. Gendreau, A Study of Synchronous Parallelization Strategies for Tabu Search, *Technical Report*, CRT-934, Centre for Research on Transportation, Montréal, 1993.
171. T.G. Crainic, M. Toulouse and M. Gendreau, An Appraisal of Asynchronous Parallelization Approaches for Tabu Search Algorithms, *Technical Report*, CRT-935, Centre for Research on Transportation, Montréal, 1993.

172. M. Toulouse, J. Desbiens, M. Lavoie, S. Pouzyreff, P. Raymond, T. Tamazouzt, Guide d'implantation pour le système CLAP (Implementation guide for the CLAP system), *Technical Report*, Centre de Recherche en Informatique Distribuée (Centre for Research on Distributed Computing), National Defense Department, Royal Military College, St-Jean, Québec, Canada, 1993.
173. M. Toulouse, J. Desbiens, M. Lavoie, S. Pouzyreff, P. Raymond, T. Tamazouzt, Guide de l'utilisateur pour le système CLAP (User's guide for the CLAP system), *Technical Report*, Centre de Recherche en Informatique Distribuée (Centre for Research on Distributed Computing), National Defense Department, Royal Military College, St-Jean, Québec, Canada, 1993.
174. M. Toulouse, J. Desbiens, M. Lavoie, S. Pouzyreff, P. Raymond, T. Tamazouzt, An Actor Based Programming System for Heterogeneous Parallel Machines, *Technical Report*, Centre de Recherche en Informatique Distribuée (Centre for Research on Distributed Computing), National Defense Department, Royal Military College, St-Jean, Québec, Canada, 1993.
175. M. Toulouse, Les Différents Protocoles de Mémoire Partagée Virtuelle pour Systèmes Distribués (Distributed Shared Memory Data Consistency Protocols for Distributed Programming Systems), *Technical Report*, Centre de Recherche en Informatique Distribuée (Centre for Research on Distributed Computing), National Defense Department, Royal Military College, St-Jean, Québec, Canada, 1993.
176. M. Toulouse, S. Pouzyreff and J. Desbiens, Concurrent Object Programming on Transputers, *Technical Report*, Centre de Recherche en Informatique Distribuée, (Centre for Research on Distributed Computing), National Defense Department, Royal Military College, St-Jean, Québec, Canada, 1992.
177. M. Toulouse, Le langage orienté objet "Self" (The Object-Oriented Language "Self"), *Technical Report*, Centre de Recherche en Informatique Distribuée, (Centre for Research on Distributed Computing), National Defense Department, Royal Military College, St-Jean, Québec, Canada, 1992.
178. M. Toulouse, Synthèse sur la Programmation Parallèle par Objets (Synthesis on Parallel Programming with Object (Actors) Languages), *Technical Report*, Centre de Recherche en Informatique Distribuée, (Centre for Research on Distributed Computing), National Defense Department, Royal Military College, St-Jean, Québec, Canada, 1992 (60 pages).
179. M. Toulouse, Programmation Parallèle par Objets sur Transputers (Parallel Programming with Objects on Transputers), *Technical Report*, Centre de Recherche en Informatique Distribuée (Centre for Research on Distributed Computing), National Defense Department, Royal Military College, St-Jean, Québec, Canada, 1992 (100 pages).
180. M. Toulouse, A Parallel Algorithm Paradigm for NP Problems, *Technical Report*, Centre for Research on Transportation, Montréal, 1991.
181. M. Toulouse, Survol de la Méthode des Tabous et de ses Applications (Overview of the Tabu Search Method and its Applications to Combinatorial Optimization Problems), *Technical Report*, CRT-829, Centre for Research on Transportation, Montréal, 1990.

**ACTIVITIES IN  
THE  
SCIENTIFIC  
COMMUNITY:  
Acting as reviewer**

- Computers & Operations Research
- Transportation Science
- Journal of Heuristics
- International Journal of Production Research
- Optimization
- Journal of mathematical modeling and algorithms
- Software: Practice and Experience
- Information Systems Journal
- IEEE Transactions on Systems, Man, and Cybernetics
- International Transactions in Operational Research
- International Journal of Intelligent Information and Database Systems
- Optimization Methods and Software
- Journal of Theoretical and Applied Computer Science
- Information Sciences
- Artificial Intelligence Journal
- Journal of Mathematical Modelling and Applications

**Journal editorship**

- Associate Editor at the Journal of Heuristics published by Kluwer Academic.
- Co-editor of a Special Issue of the Journal of Heuristics on Parallel Metaheuristics, Volume 8, Number 3, May 2002.

**Member of  
scientific program**

- The 4th International Conference on Future Data and Security Engineering (FDSE 2017), Ho Chi Minh City, Vietnam, November 29 to December 1, 2017.
- The 3rd International Conference on Future Data and Security Engineering (FDSE 2016), Can Tho, Vietnam, November 23-25, 2016.
- The Seventh International Symposium on Information and Communication Technology (SoICT 2016), Ho Chi Minh City, Vietnam, December 8-9, 2016.
- The Sixth International Symposium on Information and Communication Technology (SoICT 2015), Hue, Vietnam, December 3-4, 2015.
- The 5th International Conference on IT Convergence and Security (ICITCS2015), Kuala Lumpur, Malaysia, August 24-27, 2015.
- The 7th International Conference on Computational Collective Intelligence (ICCCI 2015), September 21-23, 2015, Madrid, Spain.
- The Fifth International Symposium on Information and Communication Technology (SoICT 2014), Hanoi, Vietnam, December 4-5, 2014.
- The 12th IEEE International Symposium on Parallel and Distributed Processing with Applications, Milan in September 2014.
- The 6th International Conference on Computational Collective Intelligence (ICCCI 2014), September 24-26, 2014, Seoul, Korea.
- The Fourth International Symposium on Information and Communication Technology (SoICT 2013), Da Nang, Vietnam, December 5-6, 2013.
- The 11th IEEE International Symposium on Parallel and Distributed Processing with Applications, Melbourne, Australia, July 16-18, 2013.

- The 5th International Conference on Computational Collective Intelligence (ICCCI 2013), September 11-13, 2013, Craiova, Romania.
- The 4th International Conference on Computational Collective Intelligence (ICCCI 2012), November 28-30, 2012, Ho Chi Minh city, Vietnam.
- The Third Symposium on Information and Communication Technology (SoICT 2012), Hanoi, Vietnam, August 23-24, 2012.
- The 10th IEEE International Symposium on Parallel and Distributed Processing with Applications, Leganés, Madrid, July 11-13, 2012.
- The 2nd Symposium on Information and Communication Technology (SoICT 2011), Hanoi, Vietnam, October 13-14, 2011.
- Workshop of Parallel Cooperative Search Methods, Held in conjunction with the 11th International Conference on Parallel Problem Solving From Nature (PPSN 2010).
- Symposium on Information and Communication Technology (SoICT 2010), Hanoi, Vietnam, August 27-28, 2010.
- The 3rd International Conference on Metaheuristics and Nature Inspired Computing (META'10), Hammamet, Tunisia, October 28-30, 2010.
- 1st Asian Conference on Intelligent Information and Database (ACIIDS'09), Dong Hoi City, Quang Binh Province, Vietnam, April 1-3, 2009.
- 2nd International Conference on Metaheuristics and Nature Inspired Computing (META'08), Hammamet, Tunisia, October 29-31, 2008.
- 2nd Workshop on Parallel Bioinspired Algorithms, London, England, July 7-11, 2007.
- Seventh Metaheuristics International Conference (MIC 2007), Montréal, June 25-29, 2007.
- Métaheuristiques (META'06), Hammamet, Tunisia, November 2-4, 2006.

**Session, cluster chair**

- The Seventh International Symposium on Information and Communication Technology, Ho Chi Minh City, Vietnam, December 8-9, 2016. Session: keynote speech "Quantitative Approaches for Road Maintenance".
- The 3rd International Conference on Future Data and Security Engineering 2016, FDSE 2016, Can Tho, Vietnam, November 23-25, 2016. Session: Security and Privacy Engineering.
- The 3rd International Conference on Future Data and Security Engineering 2016, FDSE 2016, Can Tho, Vietnam, November 23-25, 2016. Session: Access Control in NoSQL and Big Data.
- The Sixth International Symposium on Information and Communication Technology, Hue, Vietnam, December 3-5, 2015. Session: Anomaly Detection & Distributed Applications.
- International Conference on Advanced Computing and Applications, ACOMP 2015, Ho Chi Minh City, Vietnam, November 23-25, 2015. Session: High Performance & Scientific Computing (HPSC).
- The 2nd International Conference on Future Data and Security Engineering 2015, FDSE 2015, Ho Chi Minh City, Vietnam, November 23-25, 2015. Session: Emerging Data Management Systems and Applications.
- The 5th International Conference on IT Convergence and Security, ICITCS2015, Kuala Lumpur, August 24-27. Session: Security and privacy.
- The 7th FTRA International Conference on Future Information Technology (FutureTech 2012), June 26-28, 2012, Vancouver, Canada. Bioinformatics and Bio-inspired Computing track.
- 2004 INFORMS Annual Meeting at Denver, October 24-27, 2004. Session: Multiscale and Multilevel Methods.

- 2004 INFORMS Annual Meeting at Denver, October 24-27, 2004. Session: Parallel Multilevel Meta-heuristics.
- 2004 INFORMS Annual Meeting at Denver, October 24-27, 2004. A Tutorial on Multiscale Computational Methods for Optimization.
- 2004 CORS/INFORMS Joint International Meeting, Banff, May 16-19, 2004. Session: Parallel Metaheuristics.
- 2000 INFORMS meeting at Salt Lake City, May 7-10, 2000. Sequential & Cooperative Search in Combinatorial & Nonlinear Optimization.
- 1998 INFORMS meeting in Montréal, April 26-29, 1998. Metaheuristics.
- 1998 INFORMS meeting in Montréal, April 26-29, 1998. Parallel Metaheuristics.
- 1997 INFORMS meeting in Dallas, October 26-29, 1997. Cooperative and Multi-threaded Parallel Algorithms.
- 2nd METAHEURISTICS INTERNATIONAL CONFERENCE (MIC-97), Sophia-Antipolis, France, July 21-24, 1997.
- 1997 INFORMS meeting in San Diego, May 4-7, 1997. Cooperative Search Apply to Combinatorial Optimization Problems.
- Journées d'Optimisation 1996 / Optimization Days 1996, Montréal, Canada, May 13-15, 1996. Heuristics.

**Other activities in  
the Scientific  
Community**

- External Reviewer for the Postdoctoral Researchers International Mobility Experience (P.R.I.M.E.) program of the German Academic Exchange Service (DAAD), 2014.
- Member of an advisory panel for Fonds de Recherche Nature et Technologie Québec (FQRNT), a research founding agency of the Québec government in Canada, 2012.
- Member of an advisory panels for FWF Der Wissenschaftsfonds in Austria, 2009.
- Member of a Committee de La Commission d'évaluation des projets de programmes de la Conférence des Recteurs et des Principaux des Universités du Québec charged to evaluate the new Master Degree Program in Computer Science at the Université du Québec at Chicoutimi, 2007.
- I was ranked the third most influential figure in my field among 1559 scientists in a study that measures the contribution to scientific information diffusion and co-authorship activities in my field: Juan-Julián Merelo and Carlos Cotta, Building bridges: the role of subfields in metaheuristics, SIGEVOLUTION Newsletter of the ACM Special Interest Group on Genetic and Evolutionary Computation, 1(4), 2006, pp. 9 - 16.
- Member of a Committee de La Commission d'évaluation des projets de programmes de la Conférence des Recteurs et des Principaux des Universités du Québec charged to evaluate the new Master Degree Program in Computer Science at the Université du Québec at Hull, 2002.
- On the Board of Representatives of the University of Manitoba Faculty Association, 1999 - 2001.
- Member of the Headship Search Committee for the CS dept., 2001
- Chair of the CS dept. Awards Committee, 2001 - 2004.
- Member of the CS dept. Curriculum Committee 2001 - 2005.

**CONTRIBUTIONS  
TO TRAINING:  
PhD students**

1. Nguyen Khanh, Phuong. Graduated in Summer 2014. Meta-heuristic Solution Methods for Rich Vehicle Routing Problems, Dept. of Computer Science and Operations Research, Université de Montréal. Co-supervision with Professor Teodor G. Crainic, NSERC Industrial Research Chair in Logistic Management, CIRRELT.
2. Vu Duc, Minh. Graduated in Summer 2014. Solution Methods for Service Network Design with Resources Management Consideration, Dept. of Computer Science and Operations Research, Université de Montréal. Co-supervision with Professor Teodor G. Crainic, NSERC Industrial Research Chair in Logistic Management, CIRRELT.
3. Do Trung, Kien. Graduated in Summer 2014. Domain/Multi-Domain Protection and Provisioning in Optical Networks, Dept. of Computer Science and Operations Research, Université de Montréal. Co-supervision with Professor Brigitte Jaumard, Concordia Research Chair in Optimization of Communication Networks, CSE - Computer Science and Software Engineering, Concordia University.

**MSc students**

1. Curtis, Philip. Intrusion detection protocol based on distributed consensus for information fusion. Dept. of Computer Science, Oklahoma State University.
2. Mai Anh, Tien. Graduated in Summer 2012. Revisiting optimization algorithms for maximum likelihood estimation, Dept. of Computer Science and Operations Research, Université de Montréal. Co-supervision with Professor Fabian Bastin, Dept. of Computer Science and Operations Research, Université de Montréal.
3. Sharma Sathyanarayana, Giridhar. Graduated in Spring 2012. A multilevel distributed routing protocol for multi-domain optical networks, Dept. of Computer Science, Oklahoma State University. Co-supervision with Dieu-Linh Truong, Professor at Hanoi University of Science and Technology (HUST).
4. Zhou, Peng. Graduated in Spring 2008. Thesis title: Archive planning for a distributed PACS system. Dept. of Computer Science, University of Manitoba. Co-supervision with Professor Ellen Liu.
5. Oduntan, Idowu. Graduated in Autumn 2005. Thesis title: A multilevel search algorithm for feature selection in biomedical data. Dept. of Computer Science, University of Manitoba.
6. Dai, Chaoying. Graduated in Autumn 2005. Thesis title: A multilevel cooperative parallel tabu search algorithm for the covering design problem. Dept. of Computer Science, University of Manitoba. Co-supervision with Professor Ben Li.
7. Kadaba, Nivedita. Graduated in Spring 2006. Thesis title: Perceptual based visualizations for time-dependent semantics. Dept. of Computer Science, University of Manitoba. Co-supervision with Professor Pourang Irani.
8. Wang, Jing. Graduated in Summer 2006. Thesis title: Performance evaluation of multi-player online games in IEEE 801.11g wireless networks. Dept. of Computer Science, University of Manitoba. Co-supervision with Professor Ellen Liu.
9. Li, Ye. Graduated in Autumn 2005. Thesis title: A multilevel cooperative tabu search algorithm for the capacitated multicommodity network design problem. Dept. of Computer Science, University of Manitoba. Co-supervision with Professor Teodor G. Crainic.
10. Chen, Chunming. Graduated in Spring 2002. Thesis title: Computation market design and experiments. Dept. of Computer Science, University of Manitoba. Co-supervision with Professor Mahes Maheswaran.

## Stages

1. Laurent, Maxence. Project to conclude its undergraduate degree in Engineering, Sept 2006 to Dec 2006. Project title: Parallélisation de méthodes de bruitage (Parallelization of local search methods with noise strategies), HEIG-VD (Haute École d'Ingénierie et de Gestion du canton de Vaud), Switzerland.
2. Mouyang, Min. Project in Optimization, January 1999 to May 1999. Dept. of Computer Science & Engineering, University of Nebraska Lincoln.
3. Brockmeier, Aaron Nicholas. Project as Honor student, January 1999 to July 1999. Project title: Referent Domain Optimization for Bin Packing, phase 2. Dept. of Computer Science & Engineering, University of Nebraska Lincoln.
4. Song, Lijuan. Project to conclude an applied Master degree, July 1998 to December 1998. Project title: Referent Domain Optimization for Bin Packing, phase 1. School of Computer Science, University of Oklahoma.

## RESEARCH GRANTS

### Received:

- \$10,000 US, start-up package from Vietnamese-German University, 2014-2015.
- \$150,000, FQRNT (Fonds de Recherche Nature et Technologies) Québec. Programme: Projet de recherche en équipe. Project name: "Cooperative search applied to stochastic combinatorial optimization". This is a province of Québec research program that support team projects in science. The present project involved 3 others scientists in Quebec. My status in this project is as an affiliated researcher. 2012.
- \$108,981, NSERC Research Tools and Instruments Grant (EQPEQ). Project title: Software for high performance parallel optimization. Principal investigator was Bernard Gendron, I was responsible for 15% of the project. 2009.
- \$8,000, University of Manitoba Graduate Fellowship, in support of a MSc student. 2005.
- \$65,000, NSERC Discovery Grants. Project title: Cooperative search algorithms. 2004-2009.
- \$450,000, Canada Foundation for Innovation. Project title: Infrastructure supporting research in heterogeneous computing. I was the principal investigator with three other co-investigators in the project: J. Anderson, S. Ehikioya and R. Eskicioglu. 2000-2005.
- \$48,000, TRlabs. Financial support for two MSc students. 2003-2005.
- \$24,000, Bell Canada/Centre for Research of Transportation, Université de Montréal. Financial support for a PhD student. 2002-2006.
- \$52,000, NSERC Discovery Grants. Project title: Study and applications of emergent computation to coarse-grained parallel & distributed computing. 2000-2004.
- \$24,000, NSERC Equipment Grant. Project title: High performance cluster switch. I am a co-investigator. 2000.
- \$5,000, University of Manitoba Research Grant Program. Project title: Multi-level cooperative search applied to the Traveling Salesman Problem. 2000.
- \$30,000, Start-up package on hiring. 1999-2000.

### Applied for:

- None currently.