CURRICULUM VITAE

Sébastien Roy, M. Sc., PhD

305 route du Fleuve

Beaumont, QC

G0R 1C0

tel: (418) 838-0748

fax: (418) 838-0748

e-mail: S.Roy@ieee.org

date of birth: March 31st, 1968

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1 Formal education

1.1 University level

- Postdoctoral fellowship, Dept. of Electrical and Computer Engineering, Université Laval, Jan. 2001- Aug. 2002.
- PhD in electrical engineering obtained in Dec. 2000 in the area of wireless communications, Dept. of Systems and Computer Engineering, Carleton University, Ottawa ; Title of thesis : "Space-Time Processing in Fixed Broadband Wireless Systems" ; Cumulative average : A.
- Masters in electrical engineering (M. Sc.) obtained in May 1993, Université Laval ; Title of thesis : "Various Implementation Strategies for the Viterbi Algorithm on an SIMD Massively Parallel Computer" ; Cumulative average : A.
- Bachelor in electrical engineering obtained in Feb. 1991, Université Laval, Sainte-Foy, Québec ;
  Cumulative average : 4.5 / 5.0.
- One year of general engineering (1986-87), Université de Moncton, Moncton, N.-B. ;
  Cumulative average : 3.9 / 4.0.

1.2 High school

- High school diploma (June 1986), academic profile, Népisiguit High School, Bathurst, N.-B. ;
  Cumulative average : 93% (highest average of the graduating class), Certificate of excellence.

2 Social activities and collegiality

2.1 Committees and conferences

- In charge of "Computer Architecture" admission exam for the Ordre des Ingénieurs du Québec (OIQ) since Spring 2005.
- In charge of "Advanced Electronics" admission exam for the Ordre des Ingénieurs du Québec (OIQ) since Fall 2004.
- Member of the undergrad program commmittee for the electrical engineering and computer engineering programs, U. Laval, since October 2004.
- Member of the Technical Program Committee for the *19th Canadian Conference on Electrical and Computer Engineering (CCECE)*, to be held in Ottawa, May 7-10, 2006.
- Member of the Technical Program Committee for the *Northeast Workshop on Circuits and Systems (NEWCAS)*, to be held in Gatineau, Québec, June 18-21, 2006.
- Track chair for "DSP for Multiple Antenna Systems" for the *64th IEEE Vehicular Technology Conference (VTC)*, to be held in Montreal, Sept. 25-28, 2006.
- Member of the Technical Program Committee for the *23rd Biennial Symposium on Communications*, to be held in Kingston, May 31-June 1, 2006.
- Member of the Technical Program Committee for the *Northeast Workshop on Circuits and Systems (NEWCAS)* held in Quebec City, June 19-22, 2005.
- Session chair for the *Canadian Workshop on Information Theory* held in Montreal, June 5-7, 2005 for two sessions : "Communication systems I" and "Signal processing"
- Member of the Technical Program Committee for the *Canadian Workshop on Information Theory* held in Montreal, June 5-7, 2005.
- Member of the Technical Program Committee for the *60th IEEE Vehicular Technology Conference (VTC)*, Los Angeles, Sept. 26-29, 2004.
- Member-representative of U. Laval at the Canadian Microelectronics Corporation (CMC) since Sept. 2002.
- Representative of U. Laval at the Institut International des Télécommunications, volet recherche (IIT-R) since Summer 2005.
- Member of the consulting committee on the computing and network infrastructure of the Dept. of Electrical and Computer Engineering since Jan. 2003
- President of the ad hoc committee on the reform of basic electronics courses, Dept. of Electrical and Computer Engineering — Jan.-Apr. 2003
- Member, NSERC post-graduate scholarship review committee, U. Laval — Fall 2003
- President, NSERC post-graduate scholarship review committee, U. Laval — Fall 2002 and 2004
- President, provincial FQRNT post-graduate scholarship review committee — Fall 2004, 2003 and 2002
- Member, Faculty of Sciences and Engineering scholarship review committee, since 2002
- Officer (secretary) of the Quebec Section of the IEEE (Institute of Electrical and Electronics Engineers) — May 2002-August 2003.
- Member of organizing committee for VTC'98 (Vehicular Technology Conference), Ottawa, May 1998.

2.2 Paper reviews

- Reviewer for *IEEE Transactions on Circuits and Systems, part II* - 1 paper in 2006.
- Reviewer for *Canadian Journal of Electrical and Computer Engineering* - 2 papers in 2006.
- Reviewer for *IEEE Communication Letters* - 2 papers in 2004.
- Reviewer for *EURASIP Journal on Wireless Communications and Networking* - 1 paper in 2005.
- Reviewer for *Wireless Communications and Mobile Computing* - 1 paper in 2006.
- Reviewer for *Electronic Letters* - 1 paper in 2006.
- Reviewer for *EURASIP Journal on Applied Signal Processing* - 1 paper in 2004.
- Reviewer for *Signal Processing* - 3 papers in 2004, 1 paper in 2003, 1 paper in 2002
- Reviewer for *Wireless Personnal Communications* — 3 papers in 2006, 1 paper in 2004, 1 paper in 2002
- Reviewer for *IEEE Transactions on Communications* — 1 paper in 2006, 3 papers in 2004, 3 papers in 2001
- Reviewer for *JSAC (IEEE Journal on Selected Areas in Communications)* - 2 papers in 1999
- Reviewer for *IEEE Transactions on Wireless Communications* - 1 paper in 2006, 3 papers in 2005, 2 papers in 2004, 1 paper in 2003
- Reviewer for *IEEE Transactions on Broadcasting* - 2 papers in 2005, 1 paper in 2004
- TPC member, reviewer for *IEEE Canadian Conference on Electrical and Computer Engineering* 2006 — 10 papers.
- TPC member, reviewer for *Queen's Biennial Symposium on Communications* 2006 — 6 papers.
- Reviewer for *Queen's Biennial Symposium on Communications* 2005 — 4 papers.
- TPC member, reviewer for *Northeast Workshop on Circuits and Systems* 2006 — 20 papers.
- TPC member, reviewer for *Northeast Workshop on Circuits and Systems* 2005 — 15 papers.
- TPC member, reviewer for *Canadian Workshop on Information Theory (CWIT)* 2005 — 12 papers.
- Reviewer for *IEEE WCNC (Wireless Communication and Networking Conference)* 2006
- Reviewer for *IEEE ICC (International Conference on Communications)* 2006
- Reviewer for *Wimob (International Conference on Wireless and Mobile Computing, Netoworking and Communications)* 2006— 6 papers
- Reviewer for *IEEE PIMRC (International Symposium on Personal, Indoor and Mobile Radio Communications)* 2006 - 1 paper
- Reviewer for *IEEE Globecom (Global Communication Conference)* 2006 – 2 papers
- Reviewer for *Globecom (Global Communication Conference)* 2005
- Reviewer for *IEEE ICC (International Conference on Communications)* 2005
- Reviewer for *IEEE VTC Spring (Vehicular Technology Conference)* 2005
- Reviewer for *IEEE Globecom (Global Communication Conference)* 2004
- Reviewer for *IEEE ICC (International Conference on Communications)* 2004
- Reviewer for *IEEE VTC Fall (Vehicular Technology Conference)* 2004
- Reviewer for *IEEE WCNC (Wireless Communication and Networking Conference)* 2004
- Reviewer for *IEEE ICC (International Conference on Communications)* 2003
- Reviewer for *IEEE VTC (Vehicular Technology Conference)* 2003
- Reviewer for *IEEE VTC (Vehicular Technology Conference)* 2002

– Reviewer for *IEEE VTC (Vehicular Technology Conference)* 1998

2.3 Defense and thesis evaluation committees[1]

– Irina Adjudenau (PhD), examiner, proposal defense held Aug. 25th, 2006
– Jean-Marc Philippe (PhD), external examiner, defense held Nov. 21st, 2005 at the École Nationale Supérieure de Sciences Appliquées et de Technologie (ENSSAT), Lannion, France.
– Simon Savary (PhD), examiner, proposal defense held Sept. 1st, 2005.
– Mohammed Elnamaky (PhD), examiner, proposal defense held May 17th, 2005 at the Université du Québec à Trois-Rivières (UQTR).
– Hugo Bertrand (PhD), examiner, proposal defense held May 9th, 2005.
– Nicolas Dubé (PhD), examiner, proposal defense held May 4th, 2005.
– Taofik Saïdi (PhD), examiner, proposal defense held March 22nd, 2005.
– Marco Sisto (PhD), examiner, proposal defense held Dec. 15th, 2005.
– Roxana-Stefania Stincescu Breahna (PhD), president of thesis defense, Nov. 28th, 2002.
– Mohammed Hamza (PhD), reader and examiner, thesis defense held in August 2003.
– Jean-Sébastien Néron (PhD), examiner, proposal defense held in April 2003.
– Simon Mathieu (PhD), examiner, proposal defense held March 9th, 2004.
– Patrick Bouchard (PhD), examiner, proposal defense held March 25th, 2004.
– Rachelle Ouedraogo (MSc), thesis examiner, Jan. 2006.
– James Veilleux (MSc), thesis examiner, Jan. 2006.
– Mehdi Mekni (MSc), thesis examiner, thesis defense held Feb. 20th, 2006.
– Isabelle Laroche (MSc), thesis examiner, Dec. 2005.
– Michel Thériault (MSc), thesis examiner, Nov. 2005.
– Louis Dupont (MSc), thesis examiner, Nov. 2005.
– Minh Quang Nguyen (MSc), thesis examiner, Oct. 2005.
– Hugues Dombrowsky (MSc), thesis examiner, Feb. 2005.
– Frédéric Mathieu (MSc), thesis examiner, July 2005.
– Fédor Danilenko (MSc), thesis examiner, Dec. 2004.
– Sili Liu (MSc), thesis examiner, Nov. 2004.
– Poly Goy (MSc), thesis examiner, June 2004.
– Gaby Mourad (MSc), thesis examiner, Dec. 2003.
– Joao M. A. M. M. da Silva (MSc), thesis examiner, May 2003.
– Élie Elkhal (MSc), thesis examiner, Nov. 2002.
– Francesco Ricci (MSc), thesis examiner, July 2002
– Yannick Ernou (MSc), thesis examiner, March 2002.

[1] Except where indicated otherwise, defenses and evaluations are located at U. Laval.

3 Research funding

3.1 Succesful group grants

– "Advanced algorithms and implementations for broadband wireless transceivers," NSERC Collaborative Research and Development (CRD) grant, principal applicant : Sébastien Roy : $221K + $127K pledged industrial contribution from InterDigital Canada, Inc.

– "Prototyping and Real-World Evaluation of Multi-Mode Super 3G Antenna-Array Transceivers," PROMPT-Québec grant, principal applicant : Sofiène Affès : $100K + $100K pledged industrial contribution from Ericsson Canada, Inc.

– "Study of the effect of wind turbine structures on the propagation of digital television signals," FQRNT Team Research grant, principal applicant : Jean-Yves Chouinard, requested amount : $210000.

– "Radio over fiber for extended WiFi networks," NSERC Strategic grant, principal applicant : Leslie-Ann Rusch, $480000 (2005-2008).

– "Radio over fibre — optical backbone for multiple antenna WLANs," NSERC RTI grant, principal applicant : Leslie-Ann Rusch, $60000, March 2004.

– "Center for Systems and Technologies for Advanced Communications (SYTAcom)," regroupement stratégique (provincial strategic network) FQRNT, principal applicant : David Plant, $3 millions for the period 05/2004-04/2010.

– "Accès sans fil à large bande : coexistence des standards, liens MIMO et stations de base distribuées," FQRNT team research grant, principal applicant : Dominic Grenier, scientific content : Sébastien Roy, 06/2003-05/2006.

– "RF prototyping platform for MIMO systems," NSERC RTI grant, principal applicant : Sébastien Roy, $150000, March 2004.

– "Architecture générique orientée pour les radiocommunications (AGORA)," scientific exchange grant from the Fonds France-Québec (commission permanente de coopération franco-québécoise), principal applicants : Sébastien Roy and Olivier Sentieys, $18000 (2005 / 2007).

– "Architecture générique orientée pour les radiocommunications (AGORA)," scientific exchange grant from the Fonds France-Québec (commission permanente de coopération franco-québécoise), principal applicants : Sébastien Roy and Olivier Sentieys, $12000 (2004 / 2005).

– "Architecture générique orientée pour les radiocommunications (AGORA)," Subvention de rapprochement de l'ambassade de France au Canada, principal applicants : Paul Fortier and Olivier Sentieys, $10000 (2003/2004).

3.2 Succesful individual grants

– "Architecture de réseaux d'antennes à complexité réduite appliquée à un point d'accès pour réseaux WiFi," grant from the Programme de Maturation Commerciale (PMC) of Valorisation Recherche Québec (VRQ), $215086 (2005-2007).

– "Architecture de réseaux d'antennes à complexité réduite appliquée à un point d'accès pour réseaux WiFi," NSERC I2I grant, $187031 (2005-2007).

– "Virtual components and complex signal processing systems laboratory," grant from the CFI New Opportunities Fund / Programme de recherche Québec, $412104 + industrial contribution of $103026 (2004).

– "Échantillonnage généralisé dans les systèmes de traitement spatio-temporel et les systèmes MIMO," FQRNT New Researcher grant, $91200 (2004-2007).

– "System-level prototyping stations (SLPS)," FPGA prototyping stations supplied by the Canadian Microelectronics Corporation (CMC), approximate value of $80000 (2004).
– "Multiuser MIMO Systems, distributed base stations and VLSI implementations," NSERC Discovery grant, $23850 / year for 4 years (05/2003-05/2007).
– Institutional start-up grant, Université Laval, $15000 (2002).

3.3 Grant applications under review

– "Infrastructure, Facilities, and Laboratories for Optical and Wireless Systems (IFLOWS)," CFI Leading Edge Fund, application involves 4 universities (McGill, Queen's, INRS-EMT, and Laval) and 10 principal investigators, including myself ; principal applicant : David Plant, requested amount $9000000.

4 Distinctions

– Runner-up (paper in top six) for best paper award at *IEEE Vehicular Technology Conference (VTC) Spring*, Melbourne, Australia, May 7-10, 2006 — paper [b1] hereafter.
– "Professeur-étoile" ("star professor") award from the Faculty of Sciences and Engineering for teaching excellence in 2004-2005.
– "Professeur-étoile" ("star professor") award from the Faculty of Sciences and Engineering for teaching excellence in 2003-2004.
– NSERC Postdoctoral Fellowship — $70000 (Jan. 2000–Aug. 2002)
– CITR (Canadian Institute for Telecommunications Research) Postgraduate Research Excellence Award — $4000 (Aug. 2000)
– OGS Postgraduate Scholarship (Sept. 1998 – Déc. 1999).
– FCAR Postgraduate Scholarship (May – Dec. 1998) - application ranked 1st out of 44 applicants to the same committee (19 scholarships awarded).
– NSERC Postgraduate Scholarship (May 1996 – Apr. 1998).
– "David and Rachel Epstein Foundation" scholarship, Carleton University, $2000, (Feb. 1996).
– Entrance scholarship, Carleton University (Sept. 1995).
– Dean's list, Université de Moncton (1986-87).
– "NB Power" scholarship for the highest grade in electronics course, (June 1986).
– Clément Cormier entrance scholarship, Université de Moncton, $1200, (June 1986)

5 Invited Presentations

1. S. Roy, "Défis architecturaux dans les transcepteurs multi-antennes / MIMO" (Architectural challenges in multi-antenna / MIMO transceivers), to be presented at the *SYTAcom symposium*, part of the *Congrès de l'ACFAS (Association française pour le savoir)*, McGill University, Montreal, May 14th, 2006.

2. (*was cancelled because of schedule conflict*) S. Roy, "Cost-effective adaptive antenna arrays for broadband wireless networks," was to be presented at *Wireless at KTH workshop*, right after VTC'2005, Stockholm, June 2-3, 2005.
3. S. Roy and P. Fortier, "Next generation wireless networks, practical issues in MIMO systems," presented at the *SYTAcom launch research workshop*, McGill University, Montreal, Feb. 12th, 2005.
4. D. D. Falconer, A. Legnain and S. Roy, "Receiver Spatial-Temporal Signal Processing for Broadband Wireless Systems," invited paper, in *Proc. IEEE Personal Indoor and Mobile Radio Communication Conference*, London, Sept. 2000.

6 Publications

a. Papers published in scholarly journals with a formal review process

a1 Z. He, P. Fortier, and S. Roy, "A class of irregular LDPC codes with low error floor and low encoding complexity," *IEEE Communication Letters*, v. 10, n. 5, pp. 372-4, May 2006.

a2 S. Roy and L. N. Bélanger, "The Design of an FPGA-Based MIMO Transceiver for Wi-Fi," *DSP Magazine*, vol. 1, no. 2, March 2006.

a2 Z. He, P. Fortier, and S. Roy, "Design of high-performance low-density parity-check codes using interleaver approach," *Electronic Letters*, vol. 41, no. 25, pp. 1390-1, Dec. 2005.

a3 S. Roy and J.-S. Néron, "The impact of estimation error and dwell time on the performance of predetection selection diversity receivers," *Wireless Personal Communications*, vol. 33, no. 1, pp. 87-108, Apr. 2005.

a4 S. Roy and D. D. Falconer, "The matched-filter bound on optimal space–time processing in correlated fading channels," *IEEE Trans. on Wireless Comm.*, vol. 3, no. 6, pp. 2156-2169, Nov. 2004.

a5 S. Roy and P. Fortier, "A simple analytical model characterizing fading envelope correlation accross a wideband array," *IEEE Trans. on Wireless Comm.*, vol. 3, no. 5, pp. 1502 - 1507, Sept. 2004.

a6 S. Roy and P. Fortier, "Maximal-ratio combining architectures and performance with channel estimation based on a training sequence," *IEEE Trans. on Wireless Comm.*, vol. 3, no. 4, pp. 1154-1164, July 2004.

a7 S. Roy, H. T. Huynh and P. Fortier, "Compound Doppler spread effects of subscriber motion and scatterer motion," *Int. J. Electron. and Comm.*, vol. 57, no. 4, pp. 237-246, March 2003.

a8 S. Roy and D. D. Falconer, "Multi-User Decision-Feedback Space-Time Processing with Application to Broadband Wireless," *Wireless Personal Communications*, vol. 27, no. 1, pp. 1-32, Oct. 2003.

a9 S. Roy, "Speech Compression Techniques and the CDV-1 Digital Voice Box," *Circuit Cellar Ink : the Computer Applications Journal*, n. 61, pp. 24-33, Aug. 1995.

b. Papers reviewed and accepted and / or currently being printed

b1 Z. He, P. Fortier, and S. Roy, "Highly-parallel decoding architectures for convolutional turbo codes," submitted June 1st, 2005 to *IEEE Trans. VLSI Systems* ; accepted May 13th, 2006.

c. Books

c1 S. Roy, *Space-Time Methods Vol. I - Space-Time Processing*. to be published by Springer in May 2007, approx. 600 pages.

c2 S. Roy and J.-Y. Chouinard, "Réseaux d'antennes et systèmes MIMO reconfigurables," ch. 6 in "Les systèmes radiomobiles reconfigurables," edited by G. Vivier, Éditions Hermès, July 2005, pp. 161-195

c3 S. Roy and P. Fortier, "Adapting the Strongly-Connected Trellis Concept for Use with Trellis-Coded Modulation," published as a chapter in : *Information Theory and Applications.* Berlin : Springer-Verlag, 1994.

d. Reports

d1 S. Roy, "Réalisation d'un récepteur radio numérique MSK sur FPGA, phase III : modèle de référence VHDL," research report presented to Bestar Radio Inc. of Montréal, April 2002.

d2 S. Roy, "Réalisation d'un récepteur radio numérique MSK sur FPGA, phase II : simulation approfondie," research report presented to Bestar Radio Inc. of Montréal, May 2001.

d3 S. Roy, "Réalisation d'un récepteur radio numérique MSK sur FPGA, phase I : simulation de base," research report presented to Bestar Radio Inc. of Montréal, April 2001.

d4 S. Roy, "Space-Time Processing for High-Capacity Broadband Wireless," publié comme rapport technique (rapport SCE-00-01) au dépt. de génie des systèmes et informatique, université Carleton, Oct. 1999.

d5 S. Roy, "Digital Communications Laboratory Manual" (lab manual and accompanying custom Matlab toolbox), published by Carleton University, Sept. 1999.

e. Papers submitted for publication

e1 H. Bertrand, D. Grenier, and S. Roy, "Experimental antenna array calibration with artificial neural networks," submitted Feb. 20th, 2006 to *IEEE Transactions on Aerospace and Electronic Systems*.

e2 L. Dupont, S. Roy, and J.-Y. Chouinard, "Generation of random integers respecting the wNAF representation for a hardware implementation of elliptic curve cryptography," submitted Oct. 15th, 2005 to *IEEE Transactions on Circuits and Systems*.

e3 P. Leroux, S. Roy, and J.-Y. Chouinard, "The performance of soft macrodiversity based on maximal-ratio combining in uncorrelated Rayleigh and Rician fading," submitted Nov. 28th, 2005, to *IEEE Trans. Wireless Communications*.

f. Conference papers and presentations

f1 H. Bertrand, D. Grenier, and S. Roy, "Experimental antenna array calibration with ADAptive LInear NEuron (ADALINE) network," in *Proc. IEEE Vehicular Technology Conference (VTC) Spring*, Melbourne, Australia, May 7-10, 2006.

f2 I. Laroche and S. Roy, "An efficient regular matrix inversion circuit architecture for MIMO processing," in *Proc. IEEE International Symposium on Circuits and Systems (ISCAS)*, Island of Kos, Greece, May 21-24, 2006.

f3 Z. He, S. Roy, P. Fortier, "Encoder architecture with throughput over 10 Gbit/sec for quasi-cyclic low density parity check codes," in *Proc. IEEE International Symposium on Circuits and Systems (ISCAS)*, Island of Kos, Greece, May 21-24, 2006.

f4 L. Dupont, S. Roy, and J.-Y. Chouinard, "An FPGA implementation of an elliptic curve cryptosystem," in *Proc. IEEE International Symposium on Circuits and Systems (ISCAS)*, Island of Kos, Greece, May 21-24, 2006.

f5 Z. He, S. Roy, and P. Fortier, "Capacity-approaching LDPC codes with low error floors for high-speed digital communications," in *Proc. Queens' Biennial Symposium on Communications*, to be held in Kingston, May 30th-June 1st, 2006.

f6 T. Saïdi, S. Roy, and O. Sentieys, "Prototype MIMO 2×2 appliqué à la technologie HSUPA," in *Proc. Majecstic'2005*, Rennes, France, Nov. 16-18, 2005.

f7 M. Dumas, L. Bélanger, S. Roy, and J. Y. Chouinard, "Development of a SCA 3.1 compliant W-CDMA waveform

on DSP/FPGA specialized hardware," in *Proc. Software Defined Radio (SDR) Technical Conference 2005*, Orange County, CA, Nov. 14-18, 2005.

f8 J. Veilleux, P. Fortier, and S. Roy, "On the performance of a practical OFDM adaptive modulation scheme using a feedback channel," in *Proc. Pacific Rim Conference on Communications, Computers and Signal Processing* (PACRIM), Victoria, B.C., Aug. 24-26, 2005.

f9 L. Dupont, S. Roy, and J.-Y. Chouinard, "A hardware architecture for the generation of wNAF random integers," in *Proc. Northeast Workshop on Circuits and Systems*, Quebec City, June 19-22, 2005.

f10 J. Veilleux, P. Fortier and S. Roy, "An FPGA implementation of an adaptive modulation system," in *Proc. Northeast Workshop on Circuits and Systems*, Quebec City, June 19-22, 2005.

f11 Z. He, S. Roy and P. Fortier, "High-speed and low-power design of parallel turbo codes," in *Proc. International Symposium on Circuits and Systems*, Kobe, Japan, May 23-26, 2005.

f12 S. Savary, H. T. Huynh and S. Roy, "A space-frequency diversity scheme for MIMO-OFDM systems," in *Proc. Canadian Conference on Electrical and Computer Engineering*, Saskatoon, May 2005.

f13 S. Roy, "On the exact performance of zero-forcing combining antenna arrays," in *Proc. Canadian Workshop on Information Theory*, Montreal, June 5-8, 2005.

f14 S. Roy, "The MIMO matched-filter bound in correlated dispersive Rician fading," in *Proc. Canadian Workshop on Information Theory*, Montreal, June 5-8, 2005.

f15 S. Mathieu, S. Roy and J.-Y. Chouinard, "De la performance des systèmes MIMO sous-échantillonnés," in *Proc. Canadian Workshop on Information Theory*, Montreal, June 5-8, 2005.

f16 Z. He, S. Roy and P. Fortier, "High-Speed Decoder for Short and Long Turbo Codes in Wireless Communication," in *Proc. Canadian Workshop on Information Theory*, Montreal, June 5-8, 2005.

f17 M. Thériault, L. A. Rusch, S. Roy and P. Fortier, "On the Performance of DS-CDMA-based UWB with RAKE Reception," presented at the 1st SYTAcom Technology Forum, Montreal, Feb. 23rd 2005.

f18 S. Mathieu, S. Roy and J.-Y. Chouinard, "On the performance of sub-sampled MIMO systems," presented at the 1st SYTAcom Technology Forum, Montreal, Feb. 23rd 2005.

f19 J. Veilleux, P. Fortier and S. Roy, "An FPGA implementation of an OFDM adaptive modulation system," presented at the 1st SYTAcom Technology Forum, Montreal, Feb. 23rd 2005.

f20 Zhi Yong He, Sébastien Roy and Paul Fortier, "VLSI Design of High-Speed Turbo Codes for Future Mobile Systems," presented at the 1st SYTAcom Technology Forum, Montreal, Feb. 23rd 2005.

f21 Philippe Leroux, Sébastien Roy and Huu Tuê Huynh, "On the Feasibility of the Sphere Decoding Algorithm in MIMO Systems," presented at the 1st SYTAcom Technology Forum, Montreal, Feb. 23rd 2005.

f22 L. Bélanger, S. Roy, T. Saïdi et O. Sentieys, "Prototyping a MIMO W-CDMA System using a System-Level Approach," in *Proc. Internat. Signal Processing Conf. (ISPC) and Global Signal Processing Expo (GSPx)*, Santa Clara, USA, Sept. 2004.

f23 S. Roy and J.-S. Néron, "A low-cost selection diversity architecture and its performance," in *Proc. 22nd Biennial Symposium on Communications*, Kingston, pp. 386-8, June 2004.

f24 S. Roy, "The performance of maximal-ratio combiners in Nakagami fading with imperfect weight estimation," in *Proc. 22nd Biennial Symposium on Communications*, Kingston, pp. 389-391, June 2004.

f25 S. Roy and D. D. Falconer, “The space-time matched-filter bound in correlated LOS and NLOS fading channels,” in *Proc. IEEE International Conference on Communications*, Paris, France, June 20-24, 2004.

f26 H. Dombrowsky, D. Grenier and S. Roy, “ISAR Imaging with Array Antenna Receiver Using Autoclean Algorithm,” in *Proc. Canadian Conference on Electrical and Computer Engineering*, Niagara Falls, May 2004.

f27 S. Roy and P. Fortier, “A closed-form analytical model characterizing fading envelope correlation across a wideband array,” dans *Proc. IEEE Pacific Rim Conference on Computers, Communications and Signal Processing*, Victoria, pp. 209-212, août 2003.

f28 S. Roy, “Reduced complexity space-time array receiver with subarray selection,” dans *Proc. IEEE Pacific Rim Conference on Computers, Communications and Signal Processing*, Victoria, pp. 748-751, août 2003.

f29 J. M. M. da Silva, S. Roy and P. Fortier, “The impact on the capacity of a GSM / GPRS systen using space-time processing techniques,” in *Proc. Canadian Conference on Electrical and Computer Engineering*, Montreal, May 2003.

f30 S. Mathieu, P. Fortier, S. Roy and H. T. Huynh, “Discrete wavelet modulation for wireless channels," in *Proc. 21st Biennial Symposium on Communications*, Kingston, June 2002.

f31 S. Roy and P. Fortier, “On the Doppler effects of scatterer motion in high-frequency wireless links,” in *Proc. 21st Biennial Symposium on Communications*, Kingston, June 2002.

f32 S. Roy and P. Fortier, “Analyzing the impact of signature estimation on the output SINR of an adaptive array,” in *Proc. 21st Biennial Symposium on Communications*, Kingston, June 2002.

f33 S. Roy in P. Fortier, “Circuit rapide d’extraction du logarithme,” in *Proc. Acfas*, Quebec City, May 2002.

f34 S. Roy and D. D. Falconer, “Performance des récepteurs à traitement spatio-temporel en présence d’évanouissements corrélés,” in *Proc. Acfas*, Quebec City, May 2002.

f35 D. D. Falconer, A. Legnain and S. Roy, “Receiver Spatial-Temporal Signal Processing for Broadband Wireless Systems,” invited paper, in *Proc. IEEE Personal Indoor and Mobile Radio Communication Conference*, London, Sept. 2000.

f36 S. Roy and D. D. Falconer, “Multi-User Decision-Feedback Space-Time Processing with Partial Cross-Feedback Connectivity,” in *Proc. IEEE Vehicular Technology Conference 2000 Spring*, Tokyo, May 2000.

f37 S. Roy, L. Villanueva, B. Kuganathesan, D. D. Falconer and R. Bultitude, “Characterizing Subscriber-Side Scattering in the Context of Array-Enhanced LMCS Systems”, presented at *Annual CITR Research Conf.*, Montreal, Sept. 1999.

f38 R. Bérubé, S. Roy and P. Melancon, “Equipment and Measuremnents for the Verification of a Scattering Model Used in the Evaluation of Smart Antenna Systems,” presented at *Annual CITR Research Conf.*, Montreal, Sept. 1999.

f39 S. Roy and D. D. Falconer, “Multi-User Decision-Feedback Space-Time Equalization and Diversity Reception,” in *Proc. IEEE Vehicular Technology Conference 1999 Spring*, Houston, May 1999.

f40 S. Roy and D. D. Falconer, “Modelling the Narrowband Base Station Correlated Diversity Channel,” in *Proc. IEEE Communication Theory Mini-Conference 1999*, Vancouver, June 1999.

7 Patents

– S. Roy, “Array Receiver with Subarray Selection,” US Patent no. 6907272 B2, granted June 14th, 2005.

– S. Roy, “Parallel Dynamically Adaptive Sampling System,” partial patent application filed with the Canadian Intellectual

Property Office (CIPO) Feb. 23rd, 2005.

– S. Roy, "Reduced Complexity Multi-User Space-Time Adaptive Receiver Based on Dominant Subspace Filtering," International patent application (PCT) filed Jan 31st, 2005, 47 pages.
– S. Roy, "Reduced Complexity Multi-User Space-Time Adaptive Receiver Based on Dominant Subspace Filtering," US Provisional Patent application filed Jan. 30th, 2004, 47 pages.
– S. Roy, "Array Receiver with Subarray Selection, Method of Using Same, and Receiver System Incorporating Same," International patent application no. PCT/CA 03/01127, filed July 30th, 2003, 50 pages.

8 Supervision

(1) Research professionals / engineers currently supervised

1. I. Laroche, M. Sc. (electrical eng.), jr. Eng., full-time research professional in charge of microelectronics development and infrastructure, as well as communications research support, hired Sept. 2005.
2. Jean-François Boudreault, B. Sc. (computer science), full-time research professional specialized in software development, networking, TCP/IP stacks ; in charge of software development of I2I proof-of-concept prototype, hired Jan. 2006.
3. Louis Dupont, M. Sc. (electrical eng.), jr. Eng., full-time research professional specialized in FPGA / VHDL development ; in charge of hardware portion of I2I proof-of-concept prototype, hired Jan. 2006.
4. Mario Leblanc, PhD (electrical eng.), P. Eng., half-time reseaerch professional specialized in RF circuit / antenna design ; in charge of RF portion of I2I proof-of-concept prototype, hired March 2006.

(1) Graduate students currently supervised

1. P. LeHuy (PhD), since Sept. 2006
2. I. Laroche (PhD), since Jan. 2006
3. R. Ouedraogo (PhD), since Jan. 2006
4. H. Bertrand (PhD), since Jan. 2004
5. P. Bouchard (PhD), since Sept. 2002
6. Z. Y. He (PhD), since Sept. 2002
7. P. Leroux (PhD), since Sept. 2004
8. S. Mathieu (PhD), since Sept. 2002
9. T. Saidi (PhD), since Sept. 2003
10. M. Thériault (PhD), since Sept. 2004
11. G. Bouchard (Masters), since May 2003
12. L. Song (Masters), since Sept. 2004
13. J. Veilleux (Masters), since May 2003
14. M. Dumas (Masters), since Sept. 2004
15. Benoît Cournoyer (Masters), since Sept. 2004
16. E. Dubé (Masters), since Sept. 2004
17. S. Légaré (Masters), since May. 2006

18. P. Dubois (Masters), since May 2005

(2) Completed supervisions

- Isabelle Laroche (Masters) Jan. 2003-Feb. 2006. Title of the thesis : “Réalisation d’un récepteur MIMO multiusager à traitement multi-couches spatio-temporel”
- Louis Dupont (Masters) Jan. 2004-Nov. 2005. Title of the thesis : “Implantation FPGA de l’algorithme de chiffrement à courbes elliptiques”
- Fédor Danilenko (Masters) Jan. 2004-Dec. 2004. Title of the essay : “Conception et réalisation d’un simulateur de canal radio mobile”
- Hugues Dombrowsky (Masters) Sept. 2002-Jan. 2005. Title of the thesis : “Architectures de systèmes d’imagerie ISAR AUTOCLEAN avec réseau d’antennes”
- Joao M. M. da Silva (Masters) Sept. 2001-April 2003. Title of the thesis : “The impact of using space-time processing techniques on the capacity of a GSM system”
- Zhi Yong He (Masters) Sept. 2001-Oct. 2004. Title of the thesis : “Efficient VLSI implementation of a turbo decoder”
- Supervision of undergrad student — final year project of French engineering school ENSSAT— Sylvain Miermont. Project : “Étude d’un modèle de puce VLSI” (winter-summer 2004).
- Team project supervision for the “Design IV” course (4th year project) : 3 teams en 2005, 1 in 2003.
- Supervision of undergrad student (Frédéric Talbot) funded via NSERC undergrad scholarship (summer 2004). Project : “Dynamic reconfiguration of FPGAs in space-time receivers.”
- Fourth year project (Etienne Belzile), Project : “Architecture d’un processeur à 8 bits basé sur l’utilisation de piles,"
- Supervision of two students, one undergrad, the other at graduate level (Wassi Gilles Ibrahim and Joao M. M. Silva) for the period Oct. 2001-Apr. 2002. Project : “Réalisation d’une bibliothèque de simulation pour systèmes de communication sans fil MIMO.”
- Supervision of undergrad student (Michel Thériault) funded via NSERC undergrad scholarship (summer 2001). Project : “Réalisation d’un récepteur à diversité spatiale sur FPGA.”
- Fourth year project (Bala Kuganathesan) at Carleton University (Sept. 1998-Apr. 1999). Project : “Statistical characterization of main DOAs impinging on an array receiver.”
- Supervision of undergrad student (Lorelei Villanueva) under a research contract (summer 1998). Project : “Measurement site planning and IR extraction programming for outdoor channel sounding at 29.5 GHz.”

(3) Awards and scholarships held / obtained by students

- NSERC post-graduate scholarship (PhD) : Patrick Bouchard
- NSERC post-graduate scholarship (PhD) : Michel Thériault
- FQRNT post-graduate scholarship (PhD) : Simon Mathieu
- FQRNT post-graduate schoiarship (PhD) : Philippe LeHuy
- FQRNT post-graduate scholarship (Masters) : James Veilleux
- NSERC-eMPOWR scholarship (Masters) : Michel Thériault ($20000 for 1 year)
- Post-graduate scholarship from the Consulat Général de France à Québec (PhD) : Taofik Saïdi
- NSERC industrial postgraduate scholarship (Masters) : Maxime Dumas
- NSERC industrial postgraduate scholarship (Masters) : Patrick Dubois

9 Work experience

- Assistant Professor, Dept. of Electrical and Computer Engineering,, U. Laval since sept. 2002 ; Associate grade and tenure granted in November 2005, effective in June 2006
- NSERC Postdoctoral fellow between Jan. 2001 and Sept. 2002, Dept. of Electrical and Computer Engineering, U. Laval
- Lecturer, 4th year course "Introduction aux systèmes VLSI," Dept. of Electrical and Computer Engineering, U. Laval, Fall 2000 and Fall 2001.
- Lecturer, 4th year course "Réseaux de transmission de données," Dept. of Electrical and Computer Engineering, U. Laval, (March 2001 - April 2001)
- Teaching assistant, 4th year course "Digital Communications," Dept. of Systems and Computer Engineering, Carleton University (Fall 1999, 1998, 1997, 1996, 1995)
- Teaching assistant, 3rd year course "Communication Theory," Dept. of Systems and Computer Engineering, Carleton University (Winter 1999).
- Teaching assistant, 3rd year course "Microprocessors," Dept. of Systems and Computer Engineering, Carleton University (Winter 1998, 1997, 1996).
- Design and management of a database of papers, reviews and reviewers for the technical program of VTC'98 under contract with OCRI (Ottawa-Carleton Research Institute) (Sept. 1997 - Dec. 1997).
- President-founder of Tertius Technologie Inc. (Dec. 1992 - Aug. 95). Consulting firm which performed services in the following areas :
  - design and fabrication of printed circuit boards ;
  - design and fabrication of electronic prototypes ;
  - design of custom software solutions ;
  - networking and Internet.
- Lecturer for an "Introduction to Internet" course for the Université de Moncton (Jan. - Apr. 1995).
- Teaching assistant for the 4th year course "Théorie des communications" and the graduate course "Signaux et bruits", Dept. of Electrical and Computer Engineering, U. Laval (Sept. 1991 - Apr. 1992).
- Project Engineer, CADMI Microélectronics Inc., Moncton, N.-B. (Jan-Aug. 1991).

10 Langages

Fluent in both English and French, spoken and written.

11 Associations

- Member of the IEEE (Institute of Electrical and Electronic Engineers), IEEE Communication Society, IEEE Computer Society, IEEE Circuits and Systems Society and IEEE Signal Processing Society.
- Full member of the Ordre des Ingénieurs du Québec since Feb. 2003.
- Founding member of SYTAcom (Systems and Technologies for Advanced Communications), an FQRNT provincial strategic network (regroupement stratégique) headed by David Plant, McGill University.

– Associate member of RESMIQ (Réseau Stratégique en Microélectronique du Québec), an FQRNT provincial strategic network headed by Mohammed Sawan, École Polytechnique de Montréal.