

ANNUAL REPORT

Department of Electrical and Computer Engineering

February 11, 2011

Submitted by:

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Section I – Description of Unit:

The Department of Electrical and Computer Engineering consists of 48 full time professors, 19 professional staff members, 890 undergraduate students, and 328 graduate students and 47 post-doctoral fellows. At present, it offers four distinct accredited undergraduate degree programs. These are:

- B.Eng. in Electrical Engineering
- B.Eng. in Computer Engineering
- B.S.E. in Software Engineering
- B.Eng. in Honours Electrical Engineering

At the graduate level, two Master's degree programs, in addition to a Ph.D. program, are offered. The Department currently hosts the headquarters of the NSERC funded Healthcare Support through Information Technology Enhancements (hSITE) and of SYTACom (a provincially funded center for telecommunications research). The Intelligent Machines group is part of the Center for Intelligent Machines – an interdisciplinary operation involving researchers from the Department as well Mechanical Engineering and Computer Science.

The main mission and objectives of the Department are given below:

1. To continue to offer professional educational programs.
2. To create and maintain research activities which continue to be considered as world class when peer reviewed.
3. To provide an effective interface with industry both locally and around the world and to provide training and research that meets the needs of industry.

Section I: Nominative list of Academic Staff

Abhari	Ramesh	Associate Professor	On Leave
Arbel	Tal	Associate Professor	Active
Bajcsy	Jan	Associate Professor	Active
Bouffard	Francois	Assistant Professor	Active
Boulet	Benoit	Associate Professor	Active
Caines	Peter	Professor	Active
Champagne	Benoit	Associate Professor	Active
Chen	Lawrence	Professor	Active
Chodavarapu	Vamsy P.	Assistant Professor	Active
Clark	Jim	Professor	Active
Coates	Mark	Associate Professor	Active
Cooperstock	Jeremy	Associate Professor	Active
El-Gamal	Mourad	Associate Professor	Active
Ferrie	Frank	Professor	Active
Galiana	Francisco	Professor	Active
Giannacopoulos	Dennis	Associate Professor	Active
Gross	Warren	Assistant Professor	Active
Hamoui	Anas	Assistant Professor	Active
Hayward	Vincent	Professor	On leave
Joos	Geza	Professor	Active
Kabal	Peter	Professor	Active
Khazaka	Roni	Associate Professor	Active
Kirk	Andrew	Professor	Active
Labeau	Fabrice	Associate Professor	Active
Le-Ngoc	Tho	Professor	Active
Leib	Harry	Professor	Active
Levine	Martin	Professor	Active
Liboiron-Ladouceur	Odile	Assistant Professor	Active
Lowther	David	Professor	On Leave
Mahajan	Aditya	Assistant Professor	Active
Mannor	Shie	Associate Professor	On leave
McFee	Steve	Associate Professor	Active
Mi	Zetian	Assistant Professor	Active
Michalska	Hannah	Associate Professor	On Leave
Musallam	Sam	Assistant Professor	Active
Ooi	Boon-Teck	Professor	Active
Plant	David	Professor	Active
Popovich	Milica	Associate Professor	Active
Psaromiligkos	Ioannis	Associate Professor	Active
Rabbat	Michael	Assistant Professor	Active
Roberts	Gordon	Professor	On Leave
Rochette	Martin	Assistant Professor	Active
Rose	Richard	Associate Professor	On leave
Shih	Ishiang	Associate Professor	Active
Szkopek	Thomas	Assistant Professor	Active
Vu	Mai	Assistant Professor	Active
Webb	Jonathan	Professor	Active
Zilic	Zeljko	Associate Professor	Active

Section II – Teaching and Learning:

The Department continued to excel in all aspects of the teaching and learning mission. Numerous new courses were added to the curriculum.

Section III – Research:

The research effort in the Department continues to grow. Publication levels (journal and conference) and funding levels increased during the past year. Numerous “best paper” (or the equivalent) awards were received by members of the Department.

Section IV – Involvement in the Community:

Involvement in the community at all levels, from the international professional world to the local environment, is seen by the Department as crucial in both promoting the excellence of the Department on a world scale and in developing a local awareness of the nature of electrical and computer engineering, its role in society and the career possibilities. Professors and graduate students have been active in visits to high schools and CEGEPs as well as working as judges for several science fairs at the elementary, high school and regional levels. The Department was heavily involved in the Open House at McGill. The members of the Department have been heavily involved in their specific research communities through scientific committee memberships and the organization of scientific conferences. In addition professors are involved in reviewing papers for a range of journals including many of those published by the IEEE as well as for IEEE sponsored conferences.

Appendix I: Honours, Awards and Prizes for the period of June. 1st 2009 to December 31st, 2010

ABHARI, Ramesh:

- Honorable mention award was received for a paper coauthored with one of my students at the student paper competition of the IEEE International Antenna and Propagation Symposium, San Diego, California June 2009.
- Honorable mention award was received for a paper coauthored with one of my students at the student paper competition of the IEEE International Antenna and Propagation Symposium, Toronto, July 2010.

ARBEL, Tal:

- NSERC Discovery Accelerator Supplement 2010-2013 (\$40,000/year), Awarded by NSERC, April 2010.

BOULET, Benoit:

- William Dawson Scholar, renewed in 2009 until 2014

CAINES, Peter C:

- Hendrik W. Bode Lecture Prize of the IEEE Control Systems Society. Announced: December, 2008. Lecture given at the joint 48th IEEE Control Systems Society Conference on Decision and Control and 28th Chinese Control Conference, Shanghai, China, December, 2009. (The Hendrik W. Bode Prize is the highest honour awarded by the IEEE Control Systems Society.) Citation: " For Fundamental Contributions in the Areas of Stochastic, Adaptive, Large Scale and Hybrid Systems."
- IEEE Life Member (2010-present)

CHEN, Lawrence R.:

- Nominated for a chaire d'enseignement en génie et en administration dans les universités québécoises awarded by the Ministère de l'Éducation, du Loisir et du Sport from the Gouvernement du Québec.

COOPERSTOCK, Jeremy:

- Nominee, NSERC Brockhouse Award, nominated by Principal of McGill University (results pending)
- Best Paper Award, IEEE Haptics Symposium

EL-GAMAL, Mourad:

- Best Student Paper of the CANEUS Fly-By-Wireless 2009 Workshop - as coauthor with Mr. Karim Allidina (holder of an NSERC / MEDA - Vadasz Scholarship). National and International teams ran for this competition. The research work presented related to the use of very low power ultra wideband IC's for wireless communications and sensing, without interference, for aerospace applications. The evaluations were conducted by a panel of industry representatives, and the award was presented by Bombardier's Aerospace Strategic and Technology Director.
- Research performed by Prof. El-Gamal's team was featured in the Microwave and RF Magazine. The article focused on our prototype 1.8 GHz frequency synthesizer that uses a MEMS-based frequency reference as opposed to a crystal, significantly reducing the form factor of the system.
- Ph.D. student Karim Allidina received the 2010 Outstanding Teaching Assistant Award from the Faculty of Engineering.

GIANNACOPOULOS, Dennis:

- Commendation as one of the six finalists (out of 442 papers) in the category of the best paper award for "Finite element sparse matrix vector multiplication on graphic processing units," by M. Mehri Dehnavi, D. Fernandez and D. Giannacopoulos , presented at the 17th Conference on the Computation of Electromagnetic Fields (Compumag'2009), Nov. 26, 2009.

GROSS, Warren J:

- Best Poster Award at Carleton Cell BE Processor Workshop (CCPW 2009) for poster: David Moises Fernandez, Dennis Giannacopoulos and Warren Gross. "Efficient multicore sparse matrix-vector multiplication for finite element electromagnetics on the cell-BE processor".

HAYWARD, Vincent:

- 2010 Keynote speaker, Haptic Audio Interaction Design Copenhagen, Denmark
- 2010 Plenary Speaker, 32nd Annual Int. Conf. of the IEEE Eng. in Medicine and Biology Society, Buenos Aires, Argentina
- 2010 Invited Keynote Speaker, Joint European Meeting, EuroVR-EVE, Orsay, France
- 2010 Best Paper Award, Eurohaptics, Amsterdam, the Netherlands
- 2010 Top Reviewer for the Journal of Neuroscience Methods in 2009

JOOS, Geza:

- Canada Research Chair (CRC Tier 1) - 2004/01 to 2018/31 - renewed for 2011/01 to 2018/31
- NSERC Industrial Research Chair (IRC Senior Chair) - 2009/09 to 2014/08

KABAL, Peter:

- Senior Member, IEEE

KHAZAKA, Roni:

- PhD student Dani Tannir awarded best student paper award in NOLT2010.

KIRK, Andrew:

- Bourse d'enseignement en genie (Québec Government, Ministère de l'Éducation, du Loisir et du Sport), in recognition of excellence in teaching, award term 2009-2013

LEIB, Harry:

- Sytacom recognition community service award for "outstanding editorial activities in high impact professional journals" 2009

LE-NGOC, Tho:

- Fellow of the Royal Society of Canada, 2010
- Distinguished Lecturer, IEEE Communications Society, 2008-2010

LIBOIRON-LADOUCEUR, Odile:

- Nominated to the Tier II Canadian Research Chair Program by the Faculty of Engineering (Decision in 2011)
- Nomination of one of her solely supervised PhD students by Department of Electrical & Computer Engineering for the Vanier Scholarship (Decision in 2011)

MI, Zetian:

- Jan. 2009: Hydro-Quebec Nano-Engineering Scholar
- Sept. 2010: Young Investigator Award from the 27th North American Molecular Beam Epitaxy Conference
- Feb. 2010: Invited to present at Bravo "Excellent in Research 2010", McGill University

MUSALLAM, Wissam (Sam):

- Canada Research Chair in BioEngineering

PLANT, David V.:

- 2009 IEEE Microwave Theory and Techniques Society (MTTS) Microwave Prize for the following publication: J.D. Schwartz, J. Azaña, and D.V. Plant, "A fully-electronic system for the time magnification of GHz electrical signals," IEEE Trans. Microw. Theory & Tech., 55: 327-334, 2007. (international competition; one award per year);
- Elected Fellow of the Engineering Institute of Canada (FEIC, class of 2009);
- Elected Fellow of the Canadian Academy of Engineers (FCAE, class of 2009)
- IEEE Fellow
- Optical Society of America Fellow

RABBAT, Michael:

- Best Paper Award, IEEE International Conference on Distributed Computing in Sensor Systems, June, 2010
- Invitation to apply for Associate Editor of ACM Transactions on Sensor Networks
- Invitation to apply for Associate Editor of IEEE Transactions on Signal Processing

ROBERTS, Gordon:

- James McGill Professor Of Electrical & Computer Engineering, 2008-2114.
- Education Award, bourse d'enseignement en genie, Ministère de l'Éducation, du Loisir et du Sport, Quebec Government, 2009-2013.

ROSE, Richard :

- International Speech Communication Association (ISCA) 2009 Best Paper Award as co-author of the paper "Automatic speech recognition and speech variability: a review" in the ISCA Speech Communication Journal

ZILIC, Zeljko:

- Invited Keynote Speaker at International Conference on Automation, Quality, Testing and Robotics, AQTR, May. 2010.
- Invited Keynote Speaker at International Workshop on Diagnostic Services in Networks-on-Chips, Jun 2010.

Appendix II: Publications for the period June 1st, 2009 to Dec. 31st, 2010

(URL of publications : <http://www.mcgill.ca/ece/about/publications>)

Articles in Refereed Publications:

ABHARI, Ramesh:

- Kasra Payandehjoo and R. Abhari, "Employing EBG Structures in Multi-Antenna Systems for Improving Isolation and Diversity Gain" *IEEE Antennas and Wireless Propagation Letters (AWPL)*, vol. 8, 2009, pp. 1162 – 1165.
- Darryl Kostka and R. Abhari, "Experimental Evaluation of Printed Circuit Board and On-Chip Inductor Loops Backed by AMC Surfaces," *IEEE Antennas and Wireless Propagation Letters (AWPL)*, vol. 8, 2009, pp. 720-723.
- Asanee Suntives and R. Abhari, "Design and Application of Multimode Substrate Integrated Waveguides in Parallel Multichannel Signaling Systems," *IEEE Trans. Microwave Theory Tech.*, June 2009, vol. 57, pp. 1563 - 1571.
- K. Payandehjoo, A. Tavallaei and R. Abhari, "Analysis of the Shielded Electromagnetic Bandgap Structures using Multiconductor Transmission-Line Theory," *IEEE Trans. Adv. Pack.*, 8 pages, July 2009.
- Joshua D. Schwartz, Ramesh Abhari, David V. Plant and José Azaña, "Design and Analysis of 1-D Uniform and Chirped Electromagnetic Bandgap Structures (EBGs) in Substrate Integrated Waveguides," *IEEE Trans. Microwave Theory and Tech.* vol. 58, July 2010, pp. 1858-1866.
- Asanee Suntives, Nathan A. Smith and R. Abhari, "Analytical Design of a Half-Mode Substrate Integrated Waveguide Wilkinson Power Divider," *Microwave and Optics Letters*, vol. 52, issue 5, May 2010, pp. 1066-1069.
- K. Payandehjoo, A. Tavallaei and R. Abhari, "Analysis of the Shielded Electromagnetic Bandgap Structures using Multiconductor Transmission-Line Theory," *IEEE Trans. Adv. Pack.*, Feb. 2010, vol. 33, pp. 236 – 245.

ARBEL, Tal:

- Sandra Skaff, Tal Arbel, and James J. Clark, "A Sequential Bayesian Approach to Color Constancy using Non-Uniform Filters", *Computer Vision and Image Understanding*, Volume 113, Issue 9, pp. 993-1004, Sept. 2009.
- Matthew Toews and Tal Arbel, "Detection, Localization and Sex Classification of Faces from Arbitrary Viewpoints and Under Occlusion", *IEEE Transactions on Pattern Analysis and Machine Intelligence*, Vol. 31, Issue 9, pp. 1567-1581, Sept. 2009.
- M. Toews, W. Wells III, D. L. Collins and T. Arbel, "Feature-Based Morphometry: Discovering Group-related Anatomical Patterns", *NeuroImage*, Volume 49, Issue 3, pp. 2318-2327, Feb. 2010.
- R. Brooks and T. Arbel, "Generalizing inverse compositional and ESM image alignment", *International Journal of Computer Vision*, Volume 87, Issue 3, pp. 191-212, May 2010.

BOULET, Benoit:

- G. Meunier, B. Boulet and M. Nahon, Control of an overactuated cable-driven parallel mechanism for a radio telescope application, *IEEE Trans. on Control Systems Technology*, Vol. 17, No. 5, 2009, pp. 1043-1054.
- V. Raissi Dehkordi and B. Boulet, Frequency-Domain Robust Performance Conditions for Controller Uncertainty in SISO LTI Systems: A Geometric Approach, *Journal of Control Science and Engineering*, vol. 2009, Article ID 746762, 9 pages, 2009.
- H. Azarnoush, R. Bourezak, S. Vergnole, G. Lamouche, B. Boulet, "Optical Coherence Tomography Characterization of Balloon Diameter and Wall Thickness *J. Med. Devices*", June 2010 , Vol. 4, Issue 2, 027523 doi:10.1115/1.3443219

- H. Azarnoush, S. Vergnole, R. Bourezak, B. Boulet, and G.Lamouche, Optical coherence tomography monitoring of angioplasty balloon inflation in a deployment tester, *Rev. Sci. Instrum.* 81(8), 083101 (2010).

CAINES, Peter E.:

- P. Jia ,W. Qu and P.E. Caines, "On the Rapid Convergence of a Class of Decentralized Decision Processes: Quantized Progressive Second Price Auctions". *IMA Journal of Mathematical Control and Information*, vol. 26, no. 3, pp. 325-355, 2009.
- M.Y. Huang, P.E. Caines and R.P. Malhame', "The NCE (Mean Field) Principle with Locality Dependent Cost Interactions". *IEEE Trans. on Automatic Control*, Vol. 55, No.12, December, 2010, pp. 2799 - 2805.
- P. Jia, P.E. Caines, "Analysis of a Class of Decentralized Dynamical Systems: Rapid Convergence and Efficiency of Dynamical Quantized Auctions". *IMA Journal of Mathematical Control and Information*, vol.27, no. 3, 2010, pp. 329-372.
- Z. Ma, P. E. Caines and R. P. Malhame', "Control of Admission and Routing in Loss Networks: Hybrid Dynamic Programming Equations." *IEEE Trans. on Automatic Control*, vol 55, no. 2, February, 2010, pp 350 - 366.
- M. Nourian, P. E. Caines, R. P. Malhame', M.Y. Huang, "A Leader-Follower Cucker-Smale Type Flocking Synthesized via Mean Field Stochastic Control Theory: Nash Equilibria". *Brian, Body and Machine: Advances in Intelligent and Soft Computing*, Vol. 83, Eds. J. Angeles et.al., Springer Verlag, November, pp. 283 - 298, 2010.

CHAMPAGNE, Benoit:

- E. Plourde and B. Champagne, "Generalized Bayesian estimators of the spectral amplitude for speech enhancement", *IEEE Signal Processing Letters*, vol. 16, pp. 485-488, June 2009.
- C.-C. Tu and B. Champagne, "Subspace-based blind channel estimation for MIMO-OFDM systems with reduced time averaging," *IEEE Trans. on Vehicular Technology*, vol. 59, pp. 1539-1544, March 2010.
- A. El-Keyi and B. Champagne, "Adaptive Linearly Constrained Minimum Variance Beamforming for Multiuser Cooperative Relaying Using the Kalman Filter", *IEEE Trans. on Wireless Communications*, vol. 9, pp. 641-651, Feb. 2010.

CHEN, Lawrence R.:

- V. Torres-Company and L. R. Chen, "Radio-frequency waveform generator with time-multiplexing capabilities based on multi-wavelength pulse compression," *Optics Express*, vol. 17, no. 25, pp. 22553-22565 (2009).
- V. Torres-Company and L. R. Chen, "All-fiber joint-transform correlator for time-multiplexed signals," *Optics Letters*, vol. 34, no. 21, pp. 3385-3387 (2009).
- K. Sun, M. Rochette, and L. R. Chen, "Output characterization of a self-pulsating and aperiodic optical fiber source based on cascaded regeneration," *Optics Express*, vol. 17, no. 12, pp. 10419-10432 (2009).
- V. Torres-Company, C. R. Fernandez-Pousa, and L. R. Chen, "Temporal Lau effect: a multi-wavelength self-imaging phenomenon," *Optics Letters*, vol. 34, no. 12, pp. 1885-1887 (2009).
- J. Hernández-Cordero, L. R. Chen, and M. Rochette, "Multi-rate and dual-wavelength semiconductor fiber laser," *IEEE Photonics Technology Letters*, vol. 21, no. 12, pp. 808-810 (2009).
- P. Seddighian and L. R. Chen, "Independent and simultaneous delay control of two 10 Gb/s channels using a single delay element," *IEEE Photonics Technology Letters*, vol. 21, no. 6, pp. 401-403 (2009).
- P. Samadi, I. A. Kostko, A. Jain, B. Shia, C. L. Callender, P. Dumais, S. Jacob, and L. R. Chen, "Tunable lattice-form Mach-Zehnder interferometer for arbitrary binary code generation at 40 GHz," *IEEE/OSA Journal of Lightwave Technology*, vol. 28, no. 21, pp. 3070-3078 (2010).

- T. Cai and L. R. Chen, "40-80-160 GHz tunable mode-locked semiconductor fiber laser incorporating a nonlinear optical loop mirror," *Optics Express*, vol. 18, no. 17, pp. 18113–18118 (2010).
- J. Qiu, K. Sun, M. Rochette, and L. R. Chen, "Reconfigurable all-optical multi-logic gate (XOR, AND, and OR) based on cross phase modulation in a highly nonlinear fiber," *IEEE Photonics Technology Letters*, vol. 22, no. 16, pp. 1199-1201 (2010).
- J. Li and L. R. Chen, "Tunable and reconfigurable multiwavelength fiber optical parametric oscillator with 25 GHz spacing," *Optics Letters*, vol. 35, no. 11, pp. 1872-1874 (2010).
- P. Seddighian, V. Torres-Company, and L. R. Chen, "Simultaneous demodulation and demultiplexing of multi-rate WDM DPSK signals using a programmable wavelength-selective switch," *Optics Express*, vol. 18, no. 11, pp. 11657-11663 (2010).
- P. Seddighian and L. R. Chen, "Noise transfer characterization in wavelength conversion based on injection locking in a Fabry-Perot laser," *IEEE/OSA Journal of Lightwave Technology*, vol. 28, no. 7, pp. 1087-1093 (2010).
- P. Samadi, L. R. Chen, I. A. Kostko, P. Dumais, C. L. Callender, S. Jacob, and B. Shia, "Generating 4x20 GHz and 4x40 GHz pulse trains from a single 10 GHz mode-locked laser using a tunable planar lightwave circuit," *IEEE Photonics Technology Letters*, vol. 22, no. 5, pp. 281-283 (2010).

CHODAVARAPU, Vamsy:

- L. Yao, R. Khan, V. P. Chodavarapu, V. Tripathi, F. V. Bright, "Sensitivity Enhanced CMOS Phase Luminometry System using Xerogel-based Sensors, *IEEE Transactions on Biomedical Circuits & Systems*, vol. 3, pp. 304-311, 2009.
- M. Hajj-Hassan, V. P. Chodavarapu, S. Musallam, "Reinforced Silicon Neural Microelectrode Array Fabricated using Commercial MEMS process", *SPIE Journal of Micro/Nanolithography, MEMS, and MOEMS*, vol. 8, 033011, 2009. (SELECTED FOR VIRTUAL JOURNAL OF BIOLOGICAL PHYSICS RESERACH, vol. 18, iss. 3, August 2009)
- E. Ghafar-Zadeh, M. Sawan, V. P. Chodavarapu, "Micro-organism-on-Chip: Emerging Direct-Write CMOS-based Platform for Biological Applications", *IEEE Transactions on Biomedical Circuits & Systems*, vol. 3, pp. 212-219, 2009.
- E. Ghafar-Zadeh, M. Sawan, D. Therriault, S. Rajagopalan, V. P. Chodavarapu, "A direct-write microfluidic fabrication process for CMOS-based Lab-on-Chip applications", *Microelectronic Engineering*, vol. 86, pp. 2104-2109, 2009.
- M. Hajj-Hassan, V. Chodavarapu, S. Musallam, "Microfabrication of Ultra-long Reinforced Silicon Neural Electrodes", *Micro & Nano Letters*, vol. 4, pp. 53-58, 2009.
- E. Ghafar-Zadeh, S. F. Chowdhury, A. Aliakbar, R. Lambroso, V. P. Chodavarapu, L. Beitel, M. Sawan, M. Trifiro, "Handheld Impedance Biosensor System using Engineered Proteinaceous Receptors", *Biomedical Microdevices*, vol. 12, iss. 6, pp. 967-975, 2010.
- M. Hajj-Hassan, S. J. Kim, M. C. Cheung, L. Yao, V. P. Chodavarapu, A. N. Cartwright, "Porous Silicon and Porous Polymer Substrates for Optical Chemical Sensors", *SPIE Journal of Nanophotonics*, Vol. 4, No. 043513, 2010. (Selected for SPIE Newsroom article in *Biomedical Optics & Medical Imaging*, Newslink)
- A. Hu and V. P. Chodavarapu, "CMOS Optoelectronic Lock-in Amplifier with Integrated Phototransistor Array", *IEEE Transactions on Biomedical Circuits & Systems*, vol. 4, pp. 274-280, 2010.
- E. Ghafar-Zadeh, M. Sawan, V. P. Chodavarapu, T. Hosseini-Nia, "Differential Monitoring of Bacterial Growth using CMOS Capacitive Sensors", *IEEE Transactions on Biomedical Circuits & Systems*, Vol. 4, pp. 232-238, 2010.
- P. J. R. Roche, M. C. Cheung, K. Y. Yung, A. G. Kirk, V. P. Chodavarapu, and F. V. Bright, "Application of Gold quenching of Luminescence to improve Oxygen sensing using a Ruthenium (4,7-diphenyl-1,10-phenanthroline)₃ Cl₂:TEOS thin film", *Sensors and Actuators: B Chemical*, Vol. 147, pp. 581-586, 2010.

- L. Yao, K. Y. Yung, R. Khan, V. P. Chodavarapu, F. V. Bright, "CMOS Imaging of Pin-Printed Xerogel based Luminescent Sensor Microarrays, *IEEE Sensors Journal*, Vol. 10, pp. 1824-1832, 2010.
- M. Hajj-Hassan, M. C. Cheung, V. P. Chodavarapu, "Dry Etch Fabrication of Porous Silicon using Xenon Difluoride", *IET Micro & Nano Letters*, Vol. 5, pp. 63-69, 2010.

CLARK, James J.:

- Clark, J.J. and Skaff, S., "A spectral theory of color perception", *Journal of the Optical Society of America - A*, Vol. 26, No. 12, pp. 2488-2502, 2009.
- Skaff, S., Arbel, T., and Clark, J.J., "A Sequential Bayesian Approach to Color Constancy using Non-Uniform Filters", *Computer Vision and Image Understanding*, Vol. 113, No. 9, pp. 993-1004, 2009.
- Laporte, C., Clark, J.J. and Arbel, T., "Generalised Poisson 3D scatterer distributions", *IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control*, Vol. 56, No. 2, pp. 410-415, 2009.
- Clark, J.J., "Photometric Stereo using LCD Displays", *Image and Vision Computing*, Vol. 28, No. 4, pp 704-714, 2010

COATES, Mark J.:

- D. Üstebay, B. Oreshkin, M. Coates, and M. Rabbat, Greedy gossip with eavesdropping, *IEEE Transactions on Signal Processing*, vol. 58, no. 7, pp. 3765-3776, July 2010.
- B. Oreshkin, M. Coates, and M. Rabbat, Optimization and analysis of distributed averaging with short node memory, *IEEE Transactions on Signal Processing*, vol. 58, no. 5, pp. 2850-2865, May, 2010.

COOPERSTOCK, Jeremy R.:

- Olmos, A, Brulé, M., Bouillot, N., Benovoy, M., Blum, J., Sun, H., Lund, N.W., and Cooperstock, J.R. (2009) Exploring the role of latency and orchestra placement on the networked performance of a distributed opera, 12th Annual International Workshop on Presence, Los Angeles, Nov. 11-13.
- Bouillot, N., Brulé, M., and Cooperstock, J.R. (2009) Performance metrics for network audio systems: Methodology and a preliminary comparison. Audio Engineering Society 127th Convention, New York, Oct. 9-12.
- Bouillot, N., Cohen, E., Cooperstock, J.R., Floros, A., Fonseca, N., Foss, R., Goodman, M., Grant, J., Gross, K., Harris, S., Harshbarger, B., Heyraud, J., Jonsson, L., Narus, J., Page, M., Snook, T., Tanaka, A., Trieger, J. Zanghieri, U. (2009) AES White Paper AESTD1003V1: Best Practices in Network Audio, Jeremy R. Cooperstock, ed., Audio Engineering Society 57(9), September, 729-741.
- Anlauff, J., Hermann, T., Grosshauser, T., and Cooperstock, J.R. (2009) Modular tacTiles for Sonic Interactions with Smart Environments, Haptic and Audio Interaction Design, Dresden, Germany, September 10-11.
- Visell, Y., Law, A. and Cooperstock, J.R. (2009) Touch Is Everywhere: Floor Surfaces as Ambient Haptic Interfaces, *IEEE Transactions on Haptics*, July-September, pp. 148-159.
- Bérard, F., Ip, J., Benovoy, M., El-Shimy, D., Blum, J. and Cooperstock, J.R. (2009) Did Minority Report Get it Wrong? Superiority of the Mouse over 3D Input Devices for a 3D Placement Task, IFIP TC13 Conference in Human-Computer Interaction (INTERACT), Uppsala, Sweden, August 24-28.
- Wozniowski, M., Settel, Z., Bouillot, N. and Cooperstock, J.R. (2009) Audio Graffiti: A location based audio-tagging and remixing environment, International Computer Music Conference, Montreal, Aug. 16-21.
- Pellerin, R., Bouillot, N., Pietkiewicz, T., Wozniowski, M., Settel, Z., Gressier-Soudan E., and Cooperstock, J.R. (2009) SoundPark: Exploring Ubiquitous Computing through a Mixed Reality Multi-player Game Experiment, 9e Conférence Internationale sur Les Nouvelles Technologies de la Repartition (NOTERE), Montreal, June 29-July 3.

- Salimpoor, V.N., Benovoy, M., Longo, G., Larcher, K., Dagher, A., Cooperstock, J.R., and Zatorre, R.J. The Rewarding Aspects of Music Listening Involve the Dopaminergic Striatal Reward Systems of the Brain: An Investigation with [C11]Raclopride PET and fMRI, 15th Annual Meeting of the Organization for Human Brain Mapping, San Francisco, June, 18-23.
- Pellerin, R., Bouillot, N., Pietkiewicz, T., Wozniowski, M., Settel, Z., Gressier-Soudan E., and Cooperstock, J.R. (2009) SoundPark: Towards Highly Collaborative Game Support in a Ubiquitous Computing Architecture, 9th IFIP International Conference on Distributed Applications and Interoperable Systems, Lisbon, Portugal, June 9-12.
- Bouillot, N. and Cooperstock, J.R. (2009) Challenges and Performance of High-Fidelity Audio Streaming for Interactive Performances, New Interfaces for Musical Expression (NIME), Pittsburgh, June 4-6.
- Salimpoor, V., Benovoy, M., Longo, G., Cooperstock, J.R., and Zatorre, R.J. (2009). The Rewarding Aspects of Music Listening are Related to Degree of Emotional Arousal, PLoS ONE, 4(10): e7487, June.
- Law, A. Ip, J., Peck, B., Visell, Y., Kry, P. and Cooperstock, J.R. (2009). A Multimodal Floor for Virtual Environments, Demonstration in SIGGRAPH Emerging Technologies, Aug. 3-7.
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