CENTRE FOR INTELLIGENT MACHINES (CIM)

Centre de recherche sur les machines intelligentes

www.cim.mcgill.ca

Annual Report 2012

Director

Professor Benoit Boulet

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SUMMARY

The McGill Centre for Intelligent Machines (CIM) is a multi-disciplinary, inter-departmental, inter-faculty research group formed in 1985 to provide an enriched mentoring and training environment for graduate students studying in the field of robotics and intelligent systems.

For almost 3 decades, CIM has been a pioneering force in cross-disciplinary research. The Centre is primarily located in contiguous space where labs and student offices are shared. CIM's membership and students have been universally recognized over the years for their highest standards of excellence - exceptional scientific achievements and outstanding contributions to society and industry.

CIM's management design and organizational structure have been studied, emulated and adopted by various units, both within the university and outside of McGill, notably in the academic sector. CIM continues to be regarded by its peers as a model for "best practices" in a world now heavily populated by research organizations.

The Centre celebrated its 25th Anniversary with an international guest speaker series and a scientific symposium.

For the year 2012:

The Centre was comprised of 19 members from both the Faculties of Engineering and Science --the Department of Electrical and Computer Engineering, Department of Mechanical Engineering and the School of Computer Science. CIM also has 13 associate members representing a diversity of research collaborations, such as within the Faculty of Medicine -- the Royal Victoria Hospital and the Montreal Neurological Institute.

The Centre was home to a diverse population of about 215 graduate students, post-docs, research assistants and associates, as well as visiting scholars and undergraduate students from various disciplines.

PhD		Master's		U/Grads		Post-Docs		
87		63		58		7		215

The CIM members were collaborators and co-collaborators in grants and contracts totally about $700M.

REPARTI - Regroupement pour l'étude des environnements partagés intelligents répartis

http://reparti.gel.ulaval.ca/en/REPARTI/index.chtml

Centre REPARTI is a $2.4M inter-institutional, interdisciplinary collaborative venture comprised of 8 Quebec institutions, 33 members and over 200 students. The McGill node of REPARTI is represented by 14 members from the McGill Centre for Intelligent Machines (CIM). The members of the McGill node collaborate in grants and contracts valued in excess of $20M.

The institutions participating in REPARTI are - Université Laval (host institution), McGill University, Université de Sherbrooke, Ēcole Polytechnique, Université de Montréal, Université du Québec à Chicoutimi and École de technologie supérieure (ÉTS).

Supported by the Quebec government's *Fonds de recherche Nature et technologies (FRNT*), this regroupement stratégique builds on some unique precedents:

(1) The historical and concrete partnership that developed over the past 25 years between prominent researchers in U. Laval and McGill (CIM) as a result of the NSERC National Centres of Excellence program, the interuniversity-industrial consortium IRIS-Precarn, and the FQRNT Réseau QERRAnet.

(2) The long and productive relationship established between the McGill Centre for Intelligent Machines (CIM) and the Quebec government through the former FCAR Centre de recherche programme.

The formal renewal process for REPARTI began in the year 2012, and results of the competition will be announced in April 2013.

NEW MEMBER

****Professor Paul Kry became a member of CIM in 2012**

CIM welcomed Professor Paul Kry as a full member in 2012. His research interests include computer graphics, physically based animation, skin deformations of articulated characters, motion capture, interaction, and physically based modeling of humans and animals. He is specifically interested in human and animal motor control (e.g., locomotion, grasping, manipulation) in combination with natural phenomena such as the physics of rigid objects, deformation, and contact. Some areas of application in his work include computer animation for video games and movies, training simulations, ergonomics, and biologically inspired robotics and programming by demonstration. An important aspect Prof. Kry's work is the combination of real world measurements, approximate models, and physically based simulation. His research interests expand to machine learning, numerical methods, and audio.

A native of Ottawa, Prof. Kry moved to Waterloo in 1992 to attend the University of Waterloo where he obtained a B.Math. in computer science with electrical engineering electives (1997). His undergraduate studies included a one year exchange to Compiègne, France which included a six month work term in Paris. Upon graduation, he worked for Televitesse (now known as March Networks) before moving to Vancouver for graduate studies at the University of British Columbia. There, he obtained a M.Sc. (2000) and Ph.D. (2005) in computer science with his supervisor Dinesh K. Pai. While studying as a PhD in UBC, he followed Prof. Pai to New Jersey in 2002 to complete his research program at Rutgers University. After finishing he moved directly to Grenoble for postdoctoral work with the EVASION group at INRIA Rhône Alpes and the LNRS at Université René Descartes. Prof. Kry arrived at McGill University as an Assistant Professor in January 2008.

Section I – MEMBERSHIP

FULL MEMBERS

Name	Title	Department	Office	Phone	Email
Angeles, Jorge	Professor	Mechanical Engineering	Workman 452	(514) 398-6315	angelesATcimDOTmcgillDOTca
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Boulet, Benoit	Associate Professor	Electrical and Computer Engineering	McConnell 509	(514) 398-1478	bouletATcimDOTmcgillDOTca
Caines, Peter	Professor	Electrical and Computer Engineering	McConnell 512	(514) 398-7129	petercATcimDOTmcgillDOTca
Clark, James	Professor	Electrical and Computer Engineering	McConnell 422	(514) 398-2654	clarkATcimDOTmcgillDOTca
Cooperstock, Jeremy	Associate Professor	Electrical and Computer Engineering	McConnell 424	(514) 398-5992	jerATcimDOTmcgillDOTca
Cortelezzi, Luca	Associate Professor	Mechanical Engineering	McConnell 369	(514) 398-6299	crtlzATcimDOTmcgillDOTca
Dudek, Gregory	Professor	Computer Science	McConnell 419	(514) 398-4325	dudekATcimDOTmcgillDOTca
Ferrie, Frank	Professor	Electrical and Computer Engineering	McConnell 441	(514) 398-6042	ferrieATcimDOTmcgillDOTca
Kovecses, Jozsef	Associate Professor	Mechanical Engineering	Macdonald 163	(514) 398-6302	kovecsesATcimDOTmcgillDOTca
Langer, Michael	Associate Professor	Computer Science	McConnell 329	(514) 398-3740	langerATcimDOTmcgillDOTca
Levine, Martin	Professor	Electrical and Computer Engineering	Workman 451	(514) 398-7115	levineATcimDOTmcgillDOTca
Mahajan, Aditya	Assistant Professor	Electrical and Computer Engineering	McConnell 533	(514) 398-4470	adityaDOTmahajanATmcgillDOTca
Michalska, Hannah	Associate Professor	Electrical and Computer Engineering	McConnell 514	(514) 398-3053	hannahDOTmichalskaATmcgillDOTca
Nahon, Meyer	Professor	Mechanical Engineering	McConnell 421	(514) 398-2383	mnahonATcimDOTmcgillDOTca
Pineau, Joelle	Associate Professor	Computer Science	McConnell 106N	(514) 398-5432	jpineauATcsDOTmcgillDOTca
Sharf, Inna	Associate Professor	Mechanical Engineering	McConnell 214	(514) 398-1711	isharfATcimDOTmcgillDOTca
Siddiqi, Kaleem	Professor	Computer Science	McConnell 420	(514) 398-3371	siddiqiATcimDOTmcgillDOTca
Zsombor-Murray, Paul	Associate Professor	Mechanical Engineering	Workman 454	(514) 398-6311	paulATcimDOTmcgillDOTca

ASSOCIATE MEMBERS

Name	Title	Unit	Office	Phone	Email
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Forbes, James Richard	Assistant Professor	Mechanical Engineering	Macdonald 156	(514) 398-9675	jamesDOTrichardDOTforbesATmcgillDOTca
Hayward, Vincent	Professor	Electrical and Computer Engineering	McConnell 440	(514) 398-5006	haywardATcimDOTmcgillDOTca
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Kry, Paul	Assistant Professor	Computer Science	McConnell 113N	(514) 398-2577	kryATcsDOTmcgillDOTca
Liu, Xue	Assistant Professor	Computer Science	Macdonald 318	(514) 398-1819	xueliuATcsDOTmcgillDOTca
Misra, Arun	Professor	Mechanical Engineering	Workman 455	(514) 398-6288	misraATcimDOTmcgillDOTca
Mongrain, Rosaire	Associate Professor	Mechanical Engineering	Macdonald 369	(514) 398-1576	rosaireDOTmongrainATmcgillDOTca
Musallam, Sam	Assistant Professor	ECE/Dept. of Physiology	McConnell 645	(514) 398-1702	samDOTmusallamATmcgillDOTca
Panangaden, Prakash	Professor	Computer Science	McConnell 108	(514) 398-7074	prakashATcsDOTmcgillDOTca
Pike, Bruce	Professor	Neurology and Neurosurgery/Biomedical Engineering	MNI WB-315	(514) 398-1929	bruceDOTpikeATmcgillDOTca
Precup, Doina	Associate Professor	Computer Science	McConnell 326	(514) 398-6443	dprecupATcsDOTmcgillDOTca

Section II – FUNDING INITIATIVES AND AWARDS

The Centre's history is rich in scientific reputation and credibility. As a result, several of CIM's members were successful in obtaining major infrastructure grants in 2012, all of which are housed at CIM.

***NSERC Collaborative Research and Training Experience - Medical Imaging Analysis (CREATE-MIA)**
The CREATE -MIA received $1.6M from NSERC and is headed by CIM-REPARTI member Kaleem Siddiqi. It also includes CIM-REPARTI member Tal Arbel, CIM associate members Bruce Pike and Louis Collins and REPARTI members Catherine Laporte (ETS) and Maxime Descoteaux (USherbrooke), and others in Quebec. More information on the CREATE-MIA can be found at http://aggie.cim.mcgill.ca.:8080/create-mia/

*** NSERC Automotive Partnership Canada Initiative (APC)**
The APC initiative received $5M from NSERC and is headed by CIM-REPARTI member Benoit Boulet. It also includes CIM-REPARTI members Jorge Angeles and Peter Caines, as well as other researchers at McGill. More information on the APC can be found at http://www.mcgill.ca/channels/news/mcgill-researchers-help-make-electric-cars-cheaper-225179

***NSERC Canadian Field Trial Network - (NCFRN)**
The NCFRN received an award of $5M from NSERC and is headed by CIM-REPARTI member Gregory Dudek. It also includes CIM-REPARTI member Joelle Pineau and CIM member Inna Sharf, and others across Canada. For more information on the NCFRN, please go to: http://ncfrn.mcgill.ca/

AWARDS

Our sincere congratulations go out to all of our CIM student award recipients! The examples below represent only a very small sample of the total number of awards received by our students in 2012.

*CIM-REPARTI member **Jeremy Cooperstock and his team in the Shared Reality Lab** won the **Mozilla/National Science Foundation Gold Prize "Ignite Challenge"** (out of 305 submissions in the Brainstorming Round) for ``Real-Time Emergency Response Observation and Supervision'' Canadian Internet Registry Association .CA Impact Award (Applications category) for In-Situ Audio Services Project

***Amin Haji-Abolhassani**, PhD candidate under the supervisor of CIM-REPARTI member Jim Clark, won the **Best Student Paper Award at the 2012 Conference on Computer and Robot Vision** : Haji-Abolhassani, A. and Clark, J.J., ``Information Fusion in Visual Task Inference'' 2012, 9th Conference on Computer and Robot Vision (CRV), Toronto, May 2012

*CIM-REPARTI PhD candidates **Toufic Azar** (ME-Jorge Angeles/Jozsef Kovecses) and **Ahmad Haidar** (ECE-Benoit Boulet) were each a recipient of a **William and Rhea Seath Awards in Engineering Innovation in 2012**. Both Toufic and Ahmad were awarded a stipend of $20K to be spent on the development of algorithms, fabrication costs and salaries for each of their projects.

*CIM-REPARTI PhD candidate **Z. Karimaghaloo** (ECE-Tal Arbel) won **Best Paper Award for paper presented at conference STACOM**: Z. Karimaghaloo*, H. Rivaz and T. Arbel, "Hierarchical Conditional Random Fields for Myocardium Infarction Detection", in Proceedings of the Workshop on Statistical Atlases and Computational Models of the Heart (STACOM 2012): DE-MRI Segmentation Challenge held in conjunction with the 15th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI '12), Nice, France, October 2012.

Section II – PUBLICATIONS

PUBLICATIONS - Department of Electrical and Computer Engineering

ARBEL, Tal

Articles in refereed publications

D. De Nigris*, D.L. Collins, and T. Arbel, “Multi-Modal Image Registration based on Gradient Orientations of Minimal Uncertainty”, IEEE Transactions on Medical Imaging, Vol. 31, No. 12, pp. 2343-2354, Dec. 2012.

Z. Karimaghaloo*, M. Shah*, S. Francis, D. L. Arnold, D. L. Collins, and T. Arbel, “Automatic Detection of Gadoliniumenhancing Multiple Sclerosis Lesions in Brain MRI Using Conditional Random Fields”, IEEE Transactions on Medical Imaging, Vol. 31, No. 6, pp. 1181-1194, June 2012.

Papers in Refereed Conference Proceedings

Z. Karimaghaloo*, D. L. Arnold, D. L. Collins and T. Arbel, “Hierarchical Conditional Random Fields for Detection of Gadenhancing Lesions in Multiple Sclerosis”, in Proceedings of the 15th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI '12), Nice, France, October 2012.

Z. Karimaghaloo*, H. Rivaz and T. Arbel, “Hierarchical Conditional Random Fields for Myocardium Infarction Detection”, in Proceedings of the Workshop on Statistical Atlases and Computational Models of the Heart (STACOM 2012): DE-MRI Segmentation Challenge held in conjunction with the 15th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI '12), Nice, France, October 2012. BEST PAPER AWARD (oral presentation)

N. Subbanna*, V. S. Fonov, D. L. Collins and T. Arbel, “Probabilistic Gabor and Markov Random Fields Segmentation of Brain Tumours in MRI Volumes”, in Proceedings of the Workshop on Multimodal Brain Tumor Segmentation Challenge (BraTS 2012) held in conjunction with the 15th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI '12), Nice, France, October 2012. (oral presentation)

B. Oreshkin* and T. Arbel, "Optimization over Random and Gradient Probabilistic Pixel Sampling for Fast, Robust Multi-Resolution Image Registration ", in the Fifth Workshop on Biomedical Image Registration (WBIR 2012), Vanderbilt University,Nashville, Tennessee, USA, July 2012. (oral presentation).

M. Demirkus*, D. Precup, J. Clark, and T. Arbel, “Soft Biometric Trait Classification from Real-world Face Videos Conditioned on Head Pose Estimation”, in Proceedings of the IEEE Computer Society Workshop on Biometrics in association with the 2012 IEEE Computer Society Conference on Computer Vision and Pattern Recognition, Providence, Rhode Island, June 2012. (oral presentation)

D. De Nigris*, D. L. Collins and T. Arbel, "Fast and Robust Registration based on Gradient Orientations: Case Study Matching Intra-operative Ultrasound to Pre-operative MRI in Neurosurgery", In Proceedings of the 3rd International Conference on Information Processing in Computer-Assisted Interventions (IPCAI 2012), Pisa, Italy, June 2012.

Presentation by D. De Nigris*, PhD student under my supervision, "Fast and Robust Registration based on Gradient Orientations: Case Study Matching Intra-operative Ultrasound to Pre-operative MRI in

Neurosurgery", at the 3rd International Conference on Information Processing in Computer-Assisted Interventions (IPCAI 2012), Pisa, Italy, June 2012.

BOULET, Benoit

Articles in refereed publications

[1] Haidar A, Legault, L., Dallaire, M., Alkhateeb, A., Coriati, A., Messier, V., Cheng, P., Millette, M., Boulet, B., Rabasa-Lhoret, R., "Glucose-responsive Insulin and Glucagon Delivery to Regulate Glucose Levels in Adults with Type 1 Diabetes: Randomized Crossover Controlled Trial" Canadian Journal of Diabetes, October 2012, Vol. 36, Issue 5, Page S16.

[2] H. Azarnoush, S. Vergnole, V. Pazos, C.-E. Bisaillon, B. Boulet and G. Lamouche, "Intravascular optical coherence tomography to characterize tissue deformation during angioplasty: preliminary experiments with artery phantoms" SPIE Journal of Biomedical Optics, Sept. 2012, Vol. 17, No. 9, 096015.

[3] H. Azarnoush, S. Vergnole, B. Boulet,M. Sowa and G. Lamouche, "Real-time control of angioplasty balloon inflation based on feedback from intravascular optical coherence tomography: experimental validation on an excised heart and a beating heart model"
IEEE Transactions on Biomedical Engineering, May 2012, Vol. 59, No. 5:1488-95.

[4] Haidar A, Potocka E, Boulet B, Umpleby AM, Hovorka R.,
Estimating postprandial glucose fluxes using hierarchical Bayes modelling,
Comput Methods Programs Biomed. 2012, Vol. 108, No. 1, 10.1016/j.cmpb.2012.01.010

[5] H. Azarnoush, S. Vergnole, B. Boulet, R. DiRaddo and G. Lamouche, "Real-time Control of Angioplasty Balloon Inflation Based on Feedback from Intravascular Optical Coherence Tomography: Preliminary Study on an Artery Phantom," IEEE Transactions on Biomedical Engineering, March 2012, 59(3):697-705. (previously reported in 2011 report as Epub 2011 Dec. 5)

Other refereed contributions

[6] O. Alkefer and B. Boulet, "Magnesium Twin Roll Casting Machine: Modeling and Control"
9th Int. Conf. on Magnesium Alloys and their Applications, July 8-12, 2012, Vancouver, Canada.

[7] M. M. I. Chy and B. Boulet, "Iterative Learning Model Predictive Controller of Plastic Sheet Temperature for a Thermoforming Process" American Control Conference, June 27- 29, 2012, Montréal, Québec, pp. 627-633.

[8] T. Liesk, M. Nahon and B. Boulet, "Design and experimental validation of a controller suite for an autonomous, finless airship" American Control Conference, June 27- 29, 2012, Montréal, Québec, pp. 2491-2496.

[9] R. Modirnia and B. Boulet, "Application of the Watanabe-Modified Smith Predictor Control Technique in Thermoforming" American Control Conference, June 27- 29, 2012, Montréal, Québec, pp. 6448-6454.

[10] C. Zhang, B. Boulet, Z. Heng "Study of soft-sensing technique for temperature distribution during polymer sheet heating process" 24th Chinese Control and Decision Conference, May 23- 25, 2012, pp. 194-197.

CAINES, Peter

Articles in refereed publications
Publications in Journals and Books

S. Ng and P.E.Caines, "On the Continuity of Optimal Controls and Value Functions with Respect to Initial Conditions," Systems and Control Letters, Vol. 61, December, 2012, pp. 1294-1298

M. Nourian, P. E. Caines, R. P. Malhame, M.Y. Huang, ``Mean Field Control in Leader-Follower Stochastic Multi-Agent Systems: Likelihood Ratio Based Adaptation.'' IEEE Trans. on Automatic Control, Vol. 57, no. 11, Nov. 2012, pp. 2801-2816.

M.Y. Huang, P.E. Caines and R.P. Malhame, ``Social Optima in Mean Field LQG Control: Centralized and Decentralized Strategies.'' IEEE Trans. on Automatic Control, Vol. 57, No. 7, July, 2012, pp. 1736 - 1752

Conference Publications

F. Taringoo and P.E.Caines, ``Newton-Geodesic HMP Algorithms for the Optimization of Hybrid Systems and Geometric Properties of Hybrid Value Functions'', IEEE Conference on Decision and Control, Maui, HI, USA, December, 2012, pp 4211 - 4216

A. C. Kizilkale and P.E. Caines, ``Emergence of Coalitions in Mean Field Stochastic Systems'', IEEE Conference on Decision and Control, Maui, HI, USA, December, 2012, pp. 5768 - 5773

A. C. Kizilkale, S. Mannor and P.E. Caines, ''Large Scale Real-Time Bidding in the Smart Grid: A Mean Field Framework ``, IEEE Conference on Decision and Control, Maui, HI, USA, December, 2012, pp.3680 - 3687

M. Nourian and P. E. Caines, ``epsilon-Nash Mean Field Theory for Nonlinear Stochastic Dynamic Games with Major-Minor Agents'', IEEE Conference on Decision and Control, Maui, HI, USA, December, 2012, pp. 2090 - 2095

M. Nourian and P. E. Caines, ``Nash Mean Field Theory for Nonlinear Stochastic Dynamic Games with Major-Minor Agents'', MTNS, Melbourne, July, 2012, Session SE-17. Full paper in: CDROM ISBN: 978-0-646-58062-3 and at www.mtns2012.conference.net.au

A. C. Kizilkale and P.E. Caines, ``Coalition Formation in Mean Field Stochastic Systems'', MTNS, Melbourne, July, 2012, Session SE-17. Full paper in: CDROM ISBN: 978-0-646-58062-3 and at www.mtns2012.conference.net.au

D. Gromov and P.E. Caines, ``On the Stability of Interconnected Thermodynamic Systems with Heat and Work Exchange '',Proc. 2012 American Control Conference, Montreal, QC, June, 2012, pp. 386 - 391

F. Taringoo and P.E.Caines, ``On an Extension of the Hybrid Minimum Principle to Systems on Lie Groups'', Proc. 2012 American Control Conference, Montreal, QC, June, 2012, pp 4534 - 4539

D. Gromov and P.E. Caines, ``Hybrid Thermodynamic Control Systems with Phase Transitions'', ADHS12, Eindhoven, Netherlands, June, 2012, pp 277 - 283

F. Taringoo and P.E.Caines, `` The Exponential Gradient HMP Algorithm for the Optimization of Hybrid Systems on Lie Groups'', ADHS12, Eindhoven, Netherlands, June, 2012, pp 33 - 38

F. Taringoo and P.E.Caines, ``Newton-Geodesic HMP Algorithms for the Optimization of Hybrid Systems and Geometric Properties of Hybrid Value Functions'', IEEE Conference on Decision and Control, Maui, HI, USA, December, 2012, pp 4211 - 4216

A. C. Kizilkale and P.E. Caines, ``Emergence of Coalitions in Mean Field Stochastic Systems'', IEEE Conference on Decision and Control, Maui, HI, USA, December, 2012, pp. 5768 - 5773

A. C. Kizilkale, S. Mannor and P.E. Caines, ''Large Scale Real-Time Bidding in the Smart Grid: A Mean Field Framework ``, IEEE Conference on Decision and Control, Maui, HI, USA, December, 2012, pp.3680 - 3687

M. Nourian and P. E. Caines, ``epsilon-Nash Mean Field Theory for Nonlinear Stochastic Dynamic Games with Major-Minor Agents'', IEEE Conference on Decision and Control, Maui, HI, USA, December, 2012, pp. 2090 - 2095

M. Nourian and P. E. Caines, ``Nash Mean Field Theory for Nonlinear Stochastic Dynamic Games with Major-Minor Agents'', MTNS, Melbourne, July, 2012, Session SE-17. Full paper in: CDROM
ISBN: 978-0-646-58062-3 and at www.mtns2012.conference.net.au

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CDROM ISBN: 978-0-646-58062-3 and at www.mtns2012.conference.net.au

D. Gromov and P.E. Caines, ``On the Stability of Interconnected Thermodynamic Systems with Heat and Work Exchange '',Proc. 2012 American Control Conference, Montreal, QC, June, 2012, pp. 386 - 391

F. Taringoo and P.E.Caines, ``On an Extension of the Hybrid Minimum Principle to Systems on Lie Groups'', Proc. 2012 American Control Conference, Montreal, QC, June, 2012, pp 4534 - 4539

D. Gromov and P.E. Caines, ``Hybrid Thermodynamic Control Systems with Phase Transitions'', ADHS12, Eindhoven, Netherlands, June, 2012, pp 277 - 283

F. Taringoo and P.E.Caines, `` The Exponential Gradient HMP Algorithm for the Optimization of Hybrid Systems on Lie Groups'', ADHS12, Eindhoven, Netherlands, June, 2012, pp 33 - 38

CLARK, James

Articles in refereed publications

Ziat, M., Au, C.E., Haji-Abolhassani, A. and Clark, J.J., ``Enhancing visuospatial map learning through action on cellphones'', ACM Transactions on Applied Perception, Vol. 9, No. 1, March 2012

Other refereed contributions

Demirkus, M., Precup, D., Clark, J.J. and Arbel, T., ``Soft Biometric Trait Classification from Real-world Face Videos Conditioned on Head Pose Estimation.'', 2012 CVPR Workshop on Biometrics.

Haji-Abolhassani, A. and Clark, J.J., ``Visual Task Inference in Conjunction Search Using Hidden Markov Models and Token Passing", 2012 Vision Science Symposium (VSS), May 2012

Haji-Abolhassani, A. and Clark, J.J., ``Information Fusion in Visual Task Inference'', 2012 9th Conference on Computer and Robot Vision (CRV), May 2012

COOPERSTOCK, Jeremy

Articles in refereed publications

1. J. M. Black, R. F. Hess, J. R. Cooperstock, L. To*, and B. Thompson. “The measurement and treatment of suppression in amblyopia.” Visualized Experiments e3927 (2012). doi: 10.3791/3927.

2. B. L. Giordano, Y. Visell*, H.-Y. Yao, V. Hayward, J. R. Cooperstock, and S. McAdams. “Identification of walked-upon materials in auditory, kinesthetic, haptic and audio-haptic conditions.” Acoustical Society of America 131.5

3. R. F. Hess, B. Thompson, J. M. Black, G. Maehara, P. Zhang, W. R. Bobier, L. To*, and J. R. Cooperstock. An iPod for treating amblyopia: a pilot study.” Optometry

4. A. Olmos*, N. Bouillot*, T. Knight*, N. Mabire*, and J. R. Cooperstock. “A High-Fidelity Orchestra Simulator for Individual Musicians’ Practice.” Computer Music Journal 36.2, pp. 55–73. url: http://www.mitpressjournals.org/doi/pdf/ 10.1162/COMJ_a_00119.

5. D. El-Shimy*, F. Grond*, A. Olmos*, and J. R. Cooperstock. “Eyes-Free Environmental Awareness for Navigation.” Springer Journal on Multimodal User Interfaces, Special Issue on Interactive Sonification 5.3-4, pp. 131–141. doi: 10.1007/s12193-011-0065-5. url: http://www.springerlink.com/content/857h542884084ql2/.

6. G. Cirio*, M. Marchal, A. Lécuyer, and J. R. Cooperstock. “Vibrotactile Rendering of Splashing Fluids.” Transactions on Haptics, url: http://ieeexplore. ieee.org/xpls/abs_all.jsp?arnumber=6226398.

7. J. Blum*, M. Bouchard*, and J. R. Cooperstock. “Spatialized audio environmental awareness for blind users with a smartphone.”Mobile Networks and Applications

8. S. Pelletier* and J. R. Cooperstock. “Real-time free viewpoint video from a range sensor and color cameras.”Machine Vision and Applications.
url: http: //www.springerlink.com/content/b53j468736j34060/?MUD=MP.

9. Z. Qi* and J. R. Cooperstock. “Toward Dynamic Image Mosaic Generation With Robustness to Parallax.” IEEE Transactions on Image Processing 21.1, pp. 366–378.
url: http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=5959979.

10. S. Pelletier* and J. R. Cooperstock. “Preconditioning for Edge-Preserving Image Super- Resolution.” IEEE Transactions on Image Processing 21.1, pp. 67-79.
url: http:/ /ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=5898412.

Other refereed contributions

Papers in refereed conference proceedings:

1. K. Kim, J. Bolton, A. Girouard, J.R. Cooperstock, and R. Vertegaal. “TeleHuman: Effects of 3D Perspective on Gaze and Pose Estimation with a Life-size Cylindrical Telepresence Pod.” Human Factors in Computing Systems (CHI). Austin, Texas: ACM Press/Addison-Wesley Publishing Co., May, pp. 2531–2540.

2. D. El-Shimy*, T. Hermann, and J. R. Cooperstock. “A Reactive Environment for Dynamic Volume Control.” New Interfaces for Musical Expression (NIME). Ann Arbor, Michigan, May, 7 pgs.

3. J. Blum*, D. Greencorn*, and J. R. Cooperstock. “Smartphone sensor reliability for augmented reality applications.” Mobile and Ubiquitous Systems (Mobiquitous). Beijing, China: Springer, December, 13 pgs.

4. T. Knight*, N. Bouillot*, and J. R. Cooperstock. “Visualization feedback for musical ensemble practice: A case study on phrase articulation and dynamics.”Visualization and Data Analysis. IS&T/SPIE Symposium on Electronic Imaging, January, 9 pgs.

Book Chapters

1. M. Wozniewski, Z. Settel, and J. R. Cooperstock. “Sonic Interaction via Spatial Arrangement in Mixed Reality Environments.”In: Sonic Interaction Design, Ed. by K. Franinovic and S. Serafin. MIT Press.

2. Y. Visell, R. Rajalingham*, and J. R. Cooperstock. “A review of nonvisual signatures of human walking with applications to person tracking in augmented environments.” In: Walking with the senses: Perceptual techniques for walking in virtual environments. Ed. by Y. Visell and F. Fontana. Logos Verlag.

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ANGELES, Jorge

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NAHON, Meyer

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LANGER, Michael

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"Perception of blending in stereo motion panoramas" V. Couture, M.S. Langer, S. Roy, ACM Transactions on Applied Perception 9(3) July 2012

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PINEAU, Joelle

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SIDDIQI, Kaleem

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In IEEE Nuclear Science Symposium and Medical Imaging Conference (Anaheim, CA). November, 2012.

All departments submit an annual report to the university that contains updated information on grants and publications. Please see links below for CIM members and associates.

FACULTY OF SCIENCE

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