

DR. CORY MCKAY

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CURRENT POSITIONS

2006- **Professor of Music and Humanities**

Department of Liberal and Creative Arts, Marianopolis College, Westmount, Quebec, Canada

Designed and taught courses in a broad range of areas, including music technology, sound recording, audio production, live computer music performance, psychoacoustics, signal processing, symbolic music, musicology and video games. Conducted research and supervised research assistants at McGill University using cross-institutional grant funding. Developed and oversaw the college's recording studio, organized graduating recitals of Music students, supervised graduating independent projects of Arts and Sciences students, served on many academic committees (included elected positions), co-directed ArtsFest, coached the Reach for the Top team to multiple provincial championships and founded and directed the Marianopolis Laptop Computer Orchestra (MLOrk).

2013- **Regular / Full Member**

Centre for Interdisciplinary Research in Music Media and Technology, Montreal, Quebec, Canada

Collaborated with other senior researchers on multimillion-dollar music technology research projects, including SIMSSA and MIRAI. Involved in project management and planning; successful grant applications; and hiring and supervising research assistants.

SELECTED PAST POSITIONS

2015-17 **Music Technology Research Consultant**

LANDR Audio / MixGenius, Montreal, Quebec, Canada

Advised on strategic technology planning related to applying machine learning to automatic audio mastering. Researched, proposed, designed and (in some cases) implemented improvements to the deployed system and associated processes.

2004-11 **Sessional Instructor**

Music Technology Area, McGill University, Montreal, Quebec, Canada

Taught a wide variety of courses dealing with topics such as advanced music computer programming, signal processing, sound synthesis, psychoacoustics, sound recording, audio production, symbolic music processing, image processing and video production.

2010 **Postdoctoral Researcher: Musical Metadata Mining**

Computer Science Department, University of Waikato, Hamilton, New Zealand

Designed and implemented software for automatically identifying musical audio recordings, mining on-line sources for associated metadata and extracting audio features from the recordings. Incorporated this software into the Greenstone digital library framework.

2008-10 **Research Assistant: Networked Environment for Music Analysis (NEMA)**

Music Technology Area, McGill University, Montreal, Quebec, Canada

Worked with a multi-institution research group on developing and implementing a general, open and extensible web services-based resource framework for music information retrieval research. Helped to successfully apply for research funding from The Andrew W. Mellon Foundation. Hired and supervised other research assistants.

2002-03 **Research Assistant: Performance Gesture Analysis**

Music Technology Area, McGill University, Montreal, Quebec, Canada

Analyzed motion tracking and video data relating to performance gestures of musicians.

SELECTED EDUCATION

- 2004-10 **Ph.D. – Music Technology**
McGill University, Montreal, Quebec, Canada
- 2002-04 **M.A. – Music Technology**
McGill University, Montreal, Quebec, Canada
- 1998-02 **B.A. – Honours Double Major in Music and in Computer Science**
University of Guelph, Guelph, Ontario, Canada
- 1995-98 **B.Sc. – Major in Physics**
McGill University, Montreal, Quebec, Canada
- 1993-95 **Diploma of Collegial Studies – Pure and Applied Science**
Dawson College, Montreal, Quebec, Canada

SELECTED RESEARCH GRANTS AND HONOURS

- 2014-21 SSHRC Partnership Grant (co-PI) (\$2,726,697 total)
- 2016-20 FRQSC Soutien aux équipes de recherche (co-PI) (\$602,118 total)
- 2014-20 FRQSC Regroupement stratégique (part of CIRMMT grant) (\$1,459,200 total)
- 2017 McGill University Seed Grant (co-PI) (\$10,000 total)
- 2014-16 FRQSC Soutien aux équipes de recherche (co-PI) (\$54,963 total)
- 2004-09 McGill Alma Mater, GREAT and CIRMMT grants (totalling \$8500)
- 2004-07 SSHRC Canada Graduate Scholarship (\$35,000 per year, \$105,000 total)
- 2006 Outstanding Paper Award at the ISMIR 2006 conference (\$500 award)
- 2005 First place in all categories in the MIREX Symbolic Music Genre Classification contest
- 2003-04 FRQSC Bourse de maîtrise en recherche (\$15,000 per year, \$20,000 total)

SELECTED ACADEMIC SCHOLARSHIPS AND HONOURS

- 2010 Completed Ph.D. at McGill University with a CGPA of 4.0 out of 4.0
- 2004 Completed M.A. at McGill University (Dean's Honour List) with a CGPA of 3.9 out of 4.0
- 2002 Marianna Eaton Scholarship (\$2500)
- 2002 Gloria Guthrie Memorial Music Scholarship (\$500)

RESEARCH INTERESTS

- **Music Information Retrieval (MIR):** automatic music production, automatic music classification, musical data mining, feature extraction (from symbolic music, audio, lyrics, metadata, images and video), optical music recognition (OMR).
- **Computational Musicology:** applying statistical analysis and machine learning to Renaissance (and other) musics, composer attribution, empirical style delineation (e.g. genre or region).
- **Digital Music Libraries:** open research databases, music-related data models, metadata annotation, standardized data formats.
- **Computer Science:** machine learning, pattern recognition, data mining.
- **Music Performance:** laptop computer orchestras, automatic accompaniment systems, analysis of performers' expressive gestures and guitar-like hyper instruments.
- **Education:** AI-based music tutors, automatic error detection systems, music visualization software.

LANGUAGES

English and French

SELECTED ACADEMIC POSITIONS AND COMMITTEES

- 2008- Director of the Marianopolis Laptop Orchestra (MLOrk)
- 2012- Marianopolis Reach for the Top head coach (*a Canada-wide competitive academic trivia game*)
2014, 2016, 2017 and 2018 *Quebec provincial champions*
- 2016- Provincial Reach for the Top League Coordinator
- 2008- Marianopolis ArtsFest Organizing Committee
- 2013-18 Marianopolis Hiring and Selection Committees (*Music, Humanities, Math and Arts & Sciences*)
- 2017-18 Marianopolis ArtsFest Performance Award Jury
- 2012-17 Marianopolis Department of Liberal & Creative Arts Curriculum Committee (*elected*)
- 2016-17 Marianopolis Humanities Student Workload Equity Working Group
- 2014, 17 LCA Departmental Chairperson Selection Committee (*elected as chair of this committee in 2014*)
- 2017 Faculty advisor to Marianopolis Records audio recording and production student group
- 2006-16 Journal of Interdisciplinary Music Studies Advisory Board (*Associate Editor 2006-07*)
- 2014-16 ArtsFest Co-Coordinator (*a major annual exhibition of student music, film, visual arts, poetry, etc.*)
- 2015 Marianopolis College and McGill University Music Program Development Analyst
- 2014 Marianopolis Arts and Sciences Admission Selection Committee
- 2014 Marianopolis Music Grade Resolution Committee
- 2009-13 Marianopolis Arts Program Assessment, Development and Evaluation Committee (PADE)
- 2008-09 Marianopolis Admissions Task Force on Language Proficiency
- 2008 Marianopolis Technology in Teaching and Learning Committee
- 2005-07 McGill Music Technology Area Committee (*Graduate Student Representative*)
- 2007 Local organizing committee: Society of Music Perception & Cognition conference (SMPC)
- 2006 Local organizing committee: Digital Audio Effects conference (DAFx)
- 2005 ISMIR MIREX Symbolic Genre Classification Contest organizer
- 2003 Local organizing committee: New Interfaces for Musical Expression Conference (NIME)
- 2002-03 McGill Music Technology Area Committee (*Graduate Student Representative*)
- 2000-01 University of Guelph Senator (*elected*)
- 2000-01 University of Guelph Senate Board of Undergraduate Studies
- 2000-01 University of Guelph Senate Petitions Committee

SELECTED REVIEW COMMITTEES

- 2017-18 NSERC Discovery Grants
- 2005-18 International Society for Music Information Retrieval Conference (ISMIR)
- 2008-18 International Computer Music Conference (ICMC)
- 2014-17 Computer Music Journal (CMJ)
- 2017 International Journal on Digital Libraries (IJDL)
- 2017 Audio Mostly Conference
- 2011-15 Journal of New Music Research (JNMR)
- 2015 External referee for University of Lethbridge Research Fund
- 2014-15 Senior external Ph.D. examiner (Universidade Nova de Lisboa / UT Austin)
- 2007-14 IEEE Transactions on Audio, Speech and Language Processing
- 2013 AES International Conference on Semantic Audio
- 2010-11 Pattern Recognition Letters
- 2006 EURASIP Journal on Applied Signal Processing

SCHOLARLY BOOK CHAPTERS AND JOURNAL ARTICLES

- McKay, C. and I. Fujinaga. 2013. Expressing musical features, class labels, ontologies, and metadata using ACE XML 2.0. In *Structuring music through markup language: Designs and architectures*, ed. J. Steyn, 48–79. Hershey, PA: IGI Global.
- McKay, C., and I. Fujinaga. 2007. Style-independent computer-assisted exploratory analysis of large music collections. *Journal of Interdisciplinary Music Studies* 1 (1): 63–85.
- Wanderley, M., B. Vines, N. Middleton, C. McKay, and W. Hatch. 2005. The musical significance of clarinetists' ancillary gestures: An exploration of the field. *Journal of New Music Research* 34 (1): 97–113.

SELECTED PEER-REVIEWED PAPERS, PRESENTATIONS AND POSTERS

- Cumming, J. E., and C. McKay. 2018. Revisiting the origins of the Italian madrigal using machine learning. Presented at the *Medieval and Renaissance Music Conference*. 35.
- Fujinaga, I, J. E. Cumming, A. Hankinson, R. Krämer, C. McKay, P. Schubert, and J. Wild. 2017. Large-corpus music research. Presented at the *Congress of the International Musicology Society*. 212.
- McKay, C., J. E. Cumming, and I. Fujinaga. 2017. Characterizing composers using jSymbolic2 features. *Extended Abstracts for the Late-Breaking Demo Session of the 18th International Society for Music Information Retrieval Conference*.
- McKay, C., A. Hankinson, J. E. Cumming, and I. Fujinaga. 2017. A database model for computational music research. Presented at the *International Workshop on Digital Libraries for Musicology*.
- McKay, C., T. Tenaglia, J. E. Cumming, and I. Fujinaga. 2017. Using statistical feature extraction to distinguish the styles of different composers. Presented at the *Medieval and Renaissance Music Conference*. 111.
- McKay, C., T. Tenaglia, and I. Fujinaga. 2016. jSymbolic2: Extracting features from symbolic music representations. *Extended Abstracts for the Late-Breaking Demo Session of the 17th International Society for Music Information Retrieval Conference*.
- Barbosa, J., C. McKay, and I. Fujinaga. 2015. Evaluating automated classification techniques for folk music genres from the Brazilian Northeast. *15th Brazilian Symposium on Computer Music*. 3–12.
- McKay, C., and I. Fujinaga. 2015. Building an infrastructure for a 21st-century global music library. *Extended Abstracts for the Late-Breaking Demo Session of the 16th International Society for Music Information Retrieval Conference*.
- McKay, C. 2013. jProductionCritic: An educational tool for detecting technical errors in audio mixes. *Proceedings of the International Society for Music Information Retrieval Conference*. 71–6.
- McKay, C., and D. Bainbridge. 2011. A musical web mining and audio feature extraction extension to the Greenstone digital library software. *Proceedings of the International Society for Music Information Retrieval Conference*. 459–464.
- Angeles, B., C. McKay, and I. Fujinaga. 2010. Discovering metadata inconsistencies. *Proceedings of the International Society for Music Information Retrieval Conference*. 195–200.
- McKay, C., J. A. Burgoyne, J. Hockman, J. B. L. Smith, G. Vigliensoni, and I. Fujinaga. 2010. Evaluating the genre classification performance of lyrical features relative to audio, symbolic and cultural features. *Proceedings of the International Society for Music Information Retrieval Conference*. 213–8.
- McKay, C., and I. Fujinaga. 2010. Improving automatic music classification performance by extracting features from different types of data. *Proceedings of the ACM SIGMM International Conference on Multimedia Information Retrieval*. 257–66.
- Vigliensoni, G., C. McKay, and I. Fujinaga. 2010. Using jWebMiner 2.0 to improve music classification performance by combining different types of features mined from the web. *Proceedings of the International Society for Music Information Retrieval Conference*. 607–12.

SELECTED PEER-REVIEWED PAPERS, PRESENTATIONS AND POSTERS

- McKay, C., J. A. Burgoyne, J. Thompson, and I. Fujinaga. 2009. Using ACE XML 2.0 to store and share feature, instance and class data for musical classification. *Proceedings of the International Society for Music Information Retrieval Conference*. 303–8.
- McKay, C., and I. Fujinaga. 2009. jMIR: Tools for automatic music classification. *Proceedings of the International Computer Music Conference*. 65–8.
- Thompson, J., C. McKay, J. A. Burgoyne, and I. Fujinaga. 2009. Additions and improvements to the ACE 2.0 music classifier. *Proceedings of the International Society for Music Information Retrieval Conference*. 435–40.
- Fujinaga, I., and C. McKay. 2008. ACE: Autonomous Classification Engine. *Proceedings of the International Conference on Music Perception and Cognition*.
- McKay, C., and I. Fujinaga. 2008. Combining features extracted from audio, symbolic and cultural sources. *Proceedings of the International Conference on Music Information Retrieval*. 597–602.
- Fujinaga, I., J. A. Burgoyne, C. Lai, B. Li, C. McKay, and L. Pugin. 2007. Distributed Digital Music Archives and Libraries (DDMAL). Presented at the *Joint Conference of the Canadian Association of Music Libraries and the Association of Quebec Music Libraries*.
- McEnnis, D., C. McKay, and I. Fujinaga. 2006. jAudio: Additions and improvements. *Proceedings of the International Conference on Music Information Retrieval*. 385–6.
- McEnnis, D., C. McKay, and I. Fujinaga. 2006. Overview of OMEN. *Proceedings of the International Conference on Music Information Retrieval*. 7–12.
- McKay, C., and I. Fujinaga. 2007. jWebMiner: A web-based feature extractor. *Proceedings of the International Conference on Music Information Retrieval*. 113–4.
- McKay, C., and I. Fujinaga. 2006. jSymbolic: A feature extractor for MIDI files. *Proceedings of the International Computer Music Conference*. 302–5.
- McKay, C., and I. Fujinaga. 2006. Musical genre classification: Is it worth pursuing and how can it be improved?. *Proceedings of the International Conference on Music Information Retrieval*. 101–6.
- McKay, C., and I. Fujinaga. 2006. Style-independent computer-assisted exploratory analysis of large music collections. Presented at the *Joint Meeting of the American Musicological Society and the Society for Music Theory*.
- McKay, C., D. McEnnis, and I. Fujinaga. 2006. A large publicly accessible prototype audio database for music research. *Proceedings of the International Conference on Music Information Retrieval*. 160–3.
- Fiebrink, R., C. McKay, and I. Fujinaga. 2005. Combining D2K and JGAP for efficient feature weighting for classification tasks in music information retrieval. *Proceedings of the International Conference on Music Information Retrieval*. 510–3.
- McEnnis, D., C. McKay, I. Fujinaga, and P. Depalle. 2005. jAudio: A feature extraction library. *Proceedings of the International Conference on Music Information Retrieval*. 600–3.
- McKay, C. 2005. Approaches to overcoming problems in interactive musical performance systems. Presented at the *McGill Graduate Students Society Symposium*.
- McKay, C., R. Fiebrink, D. McEnnis, B. Li, and I. Fujinaga. 2005. ACE: A framework for optimizing music classification. *Proceedings of the International Conference on Music Information Retrieval*. 42–9.
- McKay, C., and I. Fujinaga. 2005. Automatic music classification and the importance of instrument identification. *Proceedings of the Conference on Interdisciplinary Musicology*. CD-ROM.
- McKay, C., and I. Fujinaga. 2005. The Bodhidharma system and the results of the MIREX 2005 symbolic genre classification contest. *International Conference on Music Information Retrieval*.
- McKay, C., D. McEnnis, R. Fiebrink, and I. Fujinaga. 2005. ACE: A general-purpose classification ensemble optimization framework. *Proceedings of the International Computer Music Conference*. 161–4.
- Sinyor, E., C. McKay, R. Fiebrink, D. McEnnis, and I. Fujinaga. 2005. Beatbox classification using ACE. *Proceedings of the International Conference on Music Information Retrieval*. 672–5.
- McKay, C. 2004. Issues in automatic musical genre classification. Presented at the *McGill Graduate Students Society Symposium*.

SELECTED PEER-REVIEWED PAPERS, PRESENTATIONS AND POSTERS

- McKay, C., and I. Fujinaga. 2004. Automatic genre classification as a study of the viability of high-level features for music classification. *Proceedings of the International Computer Music Conference*. 367–70.
- McKay, C., and I. Fujinaga. 2004. Automatic genre classification using large high-level musical feature sets. *Proceedings of the International Conference on Music Information Retrieval*. 525–30.

SELECTED INTERNATIONAL INVITED ACADEMIC PRESENTATIONS

- McKay, C. 2018. jSymbolic: A software application for music information retrieval and analysis. *Invited Speaker*. CESEM, Nova University of Lisbon, Lisbon, Portugal. 8 March 2018.
- McKay, C. 2018. Performing statistical musicological research using jSymbolic and machine learning. Presented at *The Anatomy of Polyphonic Music around 1500 International Conference*. 34–5.
- McKay, C. 2018. SIMSSA DB: A database for computational musicological research. Presented at the *International Association of Music Libraries, Archives and Documentation Centres International Congress SIMSSA Workshop*.
- McKay, C. 2012. Classifying music with jMIR. *Invited Speaker*. Department of Languages and Science of Computation, University of Malaga, Malaga, Spain. 10 January 2012.
- McKay, C., J. A. Burgoyne, and I. Fujinaga. 2009. jMIR and ACE XML: Tools for performing and sharing research in automatic music classification. Presented at the *ACM/IEEE Joint Conference on Digital Libraries Workshop on Integrating Digital Library Content with Computational Tools and Services*, University of Texas, Austin, USA. 19 June 2009.
- McKay, C., J. Frank, and J. Turel. 2007. Audiofile: No box, no limit. Presented at *Pop & Policy 2007: Music Fast Forward*.

SELECTED LOCAL INVITED ACADEMIC PRESENTATIONS

- McKay, C., J. E. Cumming, J. Stuchbery, and I. Fujinaga. 2018. Methodologies for creating symbolic early music corpora for musicological research. Presented at the *CIRMMT Workshop on Digital Musicology*, McGill University, Montreal, Canada. 27 April 2018.
- McKay, C. 2018. jSymbolic: Demonstration and tutorial. Presented at the *CIRMMT Workshop on Digital Musicology*, McGill University, Montreal, Canada. 27 April 2018.

THESES

- McKay, C. 2010. Automatic music classification with jMIR. *Ph.D. Dissertation*. McGill University, Canada.
- McKay, C. 2004. Automatic genre classification of MIDI recordings. *M.A. Thesis*. McGill University, Canada.
- McKay, C. 2002. SpeciesChecker: A system for automatically proofreading species counterpoint. *Undergraduate Thesis*. University of Guelph, Canada.
- McKay, C., and T. M. Luong. 1998. Localization of mobile robots using magnetic fields. *Undergraduate Thesis*. McGill University, Canada.

PERSONAL INTERESTS

Cycling, ice skating, jazz and blues guitar, computer music, cooking, tea/wine/whiskey tasting, photography, poetry, astrophysics, artificial intelligence, travel.

References available upon request.