

Jordan Bennett Louis Smith

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I am a music informatics researcher. I regularly contribute to ISMIR, the leading international venue for this field, and to conferences and journals in related fields (e.g., signal processing, music theory, and psychology).

Current position

2014–2016 Post-doctoral research scientist, National Institute of Advanced Industrial Science and Technology (AIST), Media Interaction Group.
Supervisor: Masataka Goto <m.goto@aist.go.jp>

Role: to develop technology that can increase users' engagement with and appreciation of music.

Projects include:

- using corpus-derived priors to improve music structure analysis algorithms;
- a music mashup-based logic game, the CrossSong puzzle;
- a music video analysis system to discover and classify derivative works (e.g., covers, live renditions, dance performances, karaoke versions, etc.)

Education

2012–2014 Queen Mary University of London, Ph.D., Electrical Engineering and Computer Science.
Thesis: **Explaining listener differences in the perception of musical structure.**
Advisor: Elaine Chew <elaine.chew@qmul.ac.uk>
Secondary advisor: Marcus Pearce <marcus.pearce@qmul.ac.uk>

2010–2012 University of Southern California, M.Sc., Operations Research Engineering. GPA: 11.85/12.00.

2008–2010 McGill University, M.A., Music Technology. GPA: 3.92/4.00.
Thesis: **A comparison and evaluation of approaches to the automatic formal analysis of musical audio.**
Advisor: Ichiro Fujinaga <ich@music.mcgill.ca>

2007–2008 McGill University, Special student, Music Theory and Music Technology. GPA: 3.96/4.00.

2002–2006 Harvard College, B.A., Music and Physics joint major. GPA: 3.41/4.00.
Thesis: **Testing Zipf's Law: The mathematics and aesthetics of performance.**
Thesis advisor: Hans Tutschku <tutschku@fas.harvard.edu>

2000–2002 Dawson College, Diplôme d'Étude Collégial, First Choice Pure & Applied Science, Honours.

Languages

Coding: Python, Matlab. Used as needed: R, Ruby, Javascript.
Tools: Git, LaTeX/BibTeX, SciPy/NumPy, Pandas, HTML/CSS
Musical tools: Max/MSP, Pd, Audacity, Sonic Visualiser
Spoken: English (fluent), French (fluent), Japanese (basic).

Previous Work Experience

- Jan.–Aug. 2010 Researcher for the Structural Analysis of Large Amounts of Music Information (SALAMI) project.
- planned and implemented collection of a large new dataset of music structure annotations
 - developed and tested a novel annotation format
 - evaluated, trained and hired annotators
 - oversaw months of data collection
 - presented description of dataset at ISMIR conference
 - to the present, I continue to manage and develop the dataset
- Website:** <https://ddmal.music.mcgill.ca/salami>
Data: <https://github.com/DDMAL/salami-data-public>
- Sept. '08–Jan. '09 Teaching assistant at McGill University, MUTH 110 (Melody and Counterpoint) with Prof. Jonathan Wild, MUTH 111 (Harmony and Analysis) with Prof. Carmen Sabourin.
- taught two weekly sections
 - met individually with students during office hours
 - graded homework and exams
 - delivered a guest lecture on invertible counterpoint for Prof. Wild.

Fellowship funding

- June 2014 Fonds québécois de la recherche sur la société et la culture (FQRSC). Provincial grant to support Ph.D. research. \$20,000 (CAD) per year. (Awarded in 2012; deferred to avoid concurrence with SSHRC. Only drawn on for two semesters.)
- May 2012 Social Sciences and Humanities Research Council (SSHRC). Federal grant to support Ph.D. research. \$20,000 (CAD) per year for two years.
- Aug. 2010 USC Provost's Ph.D. Fellowship. Recognises potential to lead in my discipline. Tuition plus \$30,000 (USD) per year for 4 years: 2 as fellowship, 2 as assistantship.
- May 2010 Fonds québécois de la recherche sur la société et la culture (FQRSC). Provincial grant to support Master's research. \$15,000 (CAD). (Awarded in 2009; deferred to avoid concurrence with SSHRC. Only drawn on for two semesters.)
- May 2009 Social Sciences and Humanities Research Council (SSHRC). Federal grant to support Master's research. \$17,500 (CAD).
- June 2008 Provost's Graduate Fellowship. McGill award to finance graduate studies. \$1,500.
- June 2004 Natural Sciences and Engineering Research Council of Canada (NSERC). National grant for undergraduate research in astronomy at University of British Columbia. \$4,500, plus a university contribution of \$4,000 (CAD).

Other awards

- Aug. 2015 Best Paper Award for “CrossSong Puzzle: Generating and unscrambling music mashups with real-time interactivity,” presented at Sound and Music Computing Conference in Maynooth, Ireland. €500, plus an invitation to submit to the *Journal of New Music Research*.
- Oct. 2006 Invited speaker at Westmount High School graduation ceremonies.
- June 2006 David McCord prize. Awarded to graduating students of Harvard “who have shown unusual creative talent in writing, drama, music, painting, drawing or sculpture.”

Publications

Publication statistics estimated by Google Scholar:

number of citations:	167	(since 2010)
h-index:	5	(greatest integer n such I have at least n papers with n citations)
i10-index:	4	(number of papers with at least 10 citations)

Book

- J. B. L. Smith**, E. Chew and G. Assayag, eds. 2016. *Mathemusical Conversations: Mathematics and Computation in Music Performance and Composition*. Book collecting the presentations given at the workshop of the same name in Singapore in February 2015. Imperial College Press / World Scientific.

Articles (peer review of full text)

- J. B. L. Smith** and M. Goto. 2016. Using priors to improve estimates of music structure. *Proceedings of the International Society for Music Information Retrieval Conference (ISMIR)*. 554–60. New York City, USA.
- J. B. L. Smith**, G. Percival, J. Kato, M. Goto and S. Fukayama. 2015. CrossSong Puzzle: Generating and unscrambling music mashups with real-time interactivity. *Sound and Music Computing Conference*. 61–7. Maynooth, Ireland. [Recognized with the conference’s Best Paper Award.]
- J. B. L. Smith**, C.-H. Chuan and E. Chew. 2014. Audio properties of perceived boundaries in music. *IEEE Transactions on Multimedia* 16:5. 1219–28.
- J. B. L. Smith**, I. Schankler and E. Chew. 2014. Listening as a creative act: Meaningful differences in structural annotations of improvised performances. *Music Theory Online* 20:3.
- J. B. L. Smith** and E. Chew. 2013. A meta-analysis of the MIREX Structural Segmentation task. In *Proceedings of the International Society for Music Information Retrieval Conference (ISMIR)*. Curitiba, Brazil. 251–6.
- J. B. L. Smith** and E. Chew. 2013. Using Quadratic Programming to estimate feature relevance in structural analyses of music. In *Proceedings of the ACM International Conference on Multimedia*. Barcelona, Spain. 113–22.
- M. Terrell, J., G. Fazekas, A. J. R. Simpson, **J. B. L. Smith**, S. Dixon. 2012. Listening level changes music similarity. In *Proceedings of ISMIR*. Porto, Portugal. 487–92.
- J. B. L. Smith**, J. A. Burgoyne, I. Fujinaga, D. De Roure and J. S. Downie. 2011. Design and creation of a large-scale database of structural annotations. In *Proceedings of ISMIR*. Miami, Florida. 555–60.
- M. Bay, J. A. Burgoyne, T. Crawford, D. De Roure, J. S. Downie, A. Ehmann, B. Fields, I. Fujinaga, K. Page and **J. B. L. Smith**. 2011. Towards web-scale computational musicology: An update on the SALAMI project. In *Proceedings of the 10th UK e-Science All Hands Meeting*. York, England.
- I. Schankler, **J. B. L. Smith**, A. François and E. Chew. 2011. Emergent formal structures of factor oracle-driven musical improvisations. *Mathematics and Computation in Music*, eds. C. Agon, M. Andreatta, G. Assayag, E. Amiot, J. Bresson and J. Mandereau. *Lecture Notes in Artificial Intelligence* 6726, 241–54.
- C. McKay, 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. In *Proceedings of ISMIR*. Utrecht, Netherlands. 213–8.
- B. Li, **J. B. L. Smith** and I. Fujinaga. 2009. Optical audio reconstruction for stereo phonograph records using white light interferometry. In *Proceedings of ISMIR*. 627–32.

Presentations and posters (peer review based on abstract)

- J. B. L. Smith** and E. Chew. August 2016. “Validating a technique for post-hoc estimation of a listener’s focus in music structure analysis.” Oral presentation seminar on Cognitively based Music Informatics Research (CogMIR), New York City, USA.
- J. B. L. Smith**, M. T. Pearce and E. Chew. February 2015. “Validating an optimisation technique for estimating the focus of a listener.” Poster presentation at Mathemusical Conversations workshop, Singapore.
- Müller, M. and **J. B. L. Smith**. 27 October 2014. “Music Structure Analysis.” Tutorial at the International Society for Music Information Retrieval Conference, Taipei, Taiwan.
- J. B. L. Smith**, M. T. Pearce and E. Chew. 19 September 2014. “The role of attention in the perception of music structure.” Poster presented at the International Conference of Students of Systematic Musicology, London, UK.
- J. B. L. Smith**, C.-H. Chuan and E. Chew. 9 August 2013. “Learning about structural analysis from structural analyses.” Talk at the biennial meeting of the Society for Music Perception and Cognition, Toronto, ON, Canada.
- J. B. L. Smith**, I. Schankler and E. Chew. 8 August 2013. “Why do listeners disagree about large-scale formal structure? A case study.” Talk at the biennial meeting of the Society for Music Perception and Cognition, Toronto, ON, Canada.
- J. B. L. Smith**, C.-H. Chuan and E. Chew. 18 December 2012. “Boundaries and novelty: the correspondence between points of change and perceived boundaries.” Presentation at the Digital Music Research Network One-day Workshop, London, UK.
- T. Brochier, **J. B. L. Smith** and E. Chew. 28 October 2011. “Can an overly slow initial tempo counteract the deceleration caused by auditory delay?” Poster presented at ISMIR late-breaking and demo session, Miami, FL.
- J. B. L. Smith** and I. Fujinaga. 2010. “A comparison and evaluation of approaches to the automatic formal analysis of musical audio.” Poster presented at the joint American Musicological Society / Society for Music Theory Annual Meeting, Indianapolis, IN.

Invited talks

- J. B. L. Smith**. 12 Feb. 2015. “Music Information Retrieval research” and “Explaining and predicting perception of musical structure.” Two presentations at Pre-workshop Study Day at Raffles Institution, a satellite event to the Mathemusical Conversations. Singapore.
- J. B. L. Smith**. 25 March 2014. “Using large datasets to understand the perception of structure in music.” Presentation at the Epstein Institute Seminar Series, University of Southern California, Los Angeles, CA, USA.

Other talks and writings

- B. Rocha., **J. B. L. Smith**, G. Peeters, J. C. Ross, O. Nieto and J. Van Balen. 2012. “Late-break session on music structure analysis.” Summary of music structure analysis discussion group at ISMIR unconference-style late-breaking session. Porto, Portugal.
- J. B. L. Smith** and I. Schankler. Review of The Third International Conference on Mathematics and Computation in Music. *Computer Music Journal* 35:4.
- J. B. L. Smith**. 26 March 2010. “Methods for the automatic structural analysis of music.” Presentation at the CIRMMT Workshop on the Structural Analysis of Music.
- J. B. L. Smith**. 2 March 2010. “A survey of approaches to the automatic formal analysis of musical audio.” Presentation at the McGill Music Technology Colloquium.

Peer reviews

Reviewer for International Society for Music Information Retrieval (ISMIR) 2010, 2012–2014

Meta-reviewer for ISMIR 2015

Reviewer for *Music Perception*, 2015

Reviewer for *Journal of New Music Research*, 2015

Academic involvement

Nov. 2013–Oct. 2014. External seminar coordinator for Centre for Digital Music at QMUL.

- Coordinated seminars given by visitors to the university.
- Publicised seminar to university and wider researcher communities

Introduced speakers

Conferences and workshops attended

(Contributed to work published at all conferences except those in italics.)

Aug. 12, 2016.	The 5th annual seminar on Cognitively based Music Informatics Research (CogMIR). New York City, USA.
Aug. 7–11, 2016.	The 17th International Society for Music Information Retrieval Conference (ISMIR). New York City, USA.
Feb. 28–March 4, 2016	Dagstuhl Seminar on Computational Music Structure Analysis (invited).
July 30–Aug. 1, 2015	The 12th Sound and Music Computing Conference (SMC). Maynooth, Ireland.
Feb. 13–15, 2015	Mathemusical Conversations: Mathematics and Computation in Music Performance and Composition. Also served as Publication Chair.
Oct. 27–31, 2014	The 15th International Society for Music Information Retrieval Conference (ISMIR). Taipei, Taiwan.
Sept. 18–20, 2014	International Conference of Students of Systematic Musicology. London, UK.
Jan. 27–29, 2014	<i>AES 53rd International Conference on Semantic Audio. London, UK. (Volunteer organizer.)</i>
Nov. 4–8, 2013	The 14th ISMIR. Curitiba, Brazil.
Oct. 21–25, 2013	The 21st ACM International Conference on Multimedia (ACMMM). Barcelona, Spain.
Aug. 8–11, 2013	The biennial meeting of the Society for Music Perception and Cognition (SMPC). Toronto, ON, Canada. <i>Also attended third annual seminar on Cognitively based Music Informatics Research (CogMIR) satellite event on Aug. 7.</i>
March 21, 2013	<i>Workshop on Information Dynamics of Music (IDyOM). London, UK.</i>
Dec. 18, 2012	DMRN+7: Digital Music Research Network One-day Workshop. London, UK.
Oct. 8–12, 2012	The 13th ISMIR. Porto, Portugal.
Oct. 24–28, 2011	The 12th ISMIR. Miami, FL.
Aug. 11–14, 2011	<i>The biennial meeting of the SMPC. Rochester, NY.</i>
June 15–17, 2011	International Conference on Mathematics and Computation in Music (MCM). Paris, France.
Nov. 4–7, 2010	American Musicological Society and the Society for Music Theory Annual Meeting (AMS/SMT). Indianapolis, IN.
March 26, 2010	Workshop on Structural Analysis of Music. McGill University, Montreal, QC.
Jan. 29, 2010	<i>North East Music Informatics Special Interest Group (NEMISIG). NYU, New York, NY.</i>

Oct. 26–30, 2009	The 10th ISMIR. Kobe, Japan. <i>Also attended CrestMuse Workshop satellite event in Kyoto on Oct. 31.</i>
Aug. 16–21, 2009	<i>International Computer Music Conference (ICMC). McGill University, Montreal, QC. (Volunteer organizer.)</i>
June 19–22, 2009	<i>International Conference on Mathematics and Computation in Music (MCM). Yale University, New Haven, CT.</i>
May 12, 2009	<i>Workshop on Expressive Performance. Université de Montréal, Montreal, QC.</i>
Nov. 14, 2008	<i>Workshop on Music and Machine Learning. Université de Montréal, Montreal, QC.</i>
Sept. 14–18, 2008	<i>The 9th ISMIR. Drexel University, Philadelphia, PA.</i>