

SIMSSA | Single Interface for Music
| Score Searching and Analysis

Workshop XVII

Infrastructure for Music Discovery



Ichiro Fujinaga

Music Technology Area, Schulich School of Music

McGill University

SIMSSA

Single Interface for Music Score Searching and Analysis

- ❖ Prototype for “Google scores” minus Google
 - ❖ OMR (optical music recognition) is required for full-text search
 - ❖ Sophisticated music analysis and query
- ❖ Access to digitized scores world-wide from a single website
- ❖ Funded by SSHRC/FRQSC/Mellon 2014–2021: \$4.2M

What would SIMSSA provide?

- ❖ CONTENT: Web-based optical music recognition (OMR) system with score editors
 - ❖ Rodan (workflow management system)
 - ❖ Gamera + Aruspix (a combination of existing OMR software)
 - ❖ Verovio (open-source music engraver)
 - ❖ Early music
 - ❖ “Gradsourcing” to correct errors
- ❖ SEARCH & ANALYSIS: Web-based user interface to view, search, annotate, and analyze scores
 - ❖ MEI (Music Encoding Initiative)
 - ❖ Diva.js (web-based document delivery system)
 - ❖ Musiclibs (cross-depository music search engine)
 - ❖ SIMSSA DB (formerly ELVIS Database)
 - ❖ Humdrum / music21 / VIS / jSymbolic (analytical tools)

SIMSSA Team: Musicologists (20)

- ❖ Jennifer Bain (Dalhousie)
- ❖ Inga Behrendt (Tübingen)
- ❖ Mauro Calcagno (Pennsylvania)
- ❖ Julia Craig-McFeely (Oxford)
- ❖ Julie Cumming (McGill)
- ❖ Elsa De Luca (Universidade Nova de Lisboa)
- ❖ Karen Desmond (Brandeis)
- ❖ Glen Ethier (Vanier College)
- ❖ Giuseppe Gerbino (Columbia)
- ❖ Kate Helsen (Western Ontario)
- ❖ Debra Lacoste (Waterloo)
- ❖ Sarah Long (Michigan State)
- ❖ Jesse Rodin (Stanford)
- ❖ René Rusch (U Michigan)
- ❖ Peter Schubert (McGill)
- ❖ Susan Forscher Weiss (Johns Hopkins)
- ❖ Frans Wiering (Utrecht)
- ❖ Jonathan Wild (McGill)

SIMSSA Team: Librarians (9)

- ❖ Richard Chesser (British Library)
- ❖ Rachelle Chiasson-Taylor (Library and Archives Canada)
- ❖ Erin Conor (U of Washington)
- ❖ Barbara Dobbs Mackenzie (RILM)
- ❖ J. Stephen Downie (Illinois)
- ❖ Massimo Gentili-Tedeschi (RISM-Italy)
- ❖ Audrey Laplante (U de Montréal)
- ❖ Cynthia Leive (McGill)
- ❖ Perry Roland (Virginia)

SIMSSA Team: Music Technologists (12)

- ❖ Jorge Calvo-Zaragoza (U Alicante)
- ❖ Michael Scott Cuthbert (MIT)
- ❖ Christoph Dalitz (Niederrhein U)
- ❖ Andrew Hankinson (Oxford)
- ❖ Johannes Kepper (U Paderborn)
- ❖ Jan Koláček (Charles U, Prague)
- ❖ Cory McKay (Marianopolis College)
- ❖ Laurent Pugin (RISM)
- ❖ Craig Sapp (Stanford)
- ❖ Caroline Traube (U de Montréal)
- ❖ George Tzanetakis (U Victoria)
- ❖ Gabriel Vigliensoni (McGill)

SIMSSA: Partners (23)

- ❖ Alexander Street Press
- ❖ Bavarian State Library
- ❖ Bibliothèque nationale de France
- ❖ British Library
- ❖ Compute Canada / Calcul Québec
- ❖ Dalhousie University
- ❖ DIAMM Centre for Studies in Early Music
- ❖ Harvard University Music Library
- ❖ Hathi Trust Research Center
- ❖ New York Philharmonic Archives
- ❖ Répertoire International de Littérature Musicale (RILM)
- ❖ RISM Switzerland
- ❖ State University of New York at Stony Brook
- ❖ The Juilliard School
- ❖ The Walters Art Museum
- ❖ Université de Montréal
- ❖ University of London, Goldsmith
- ❖ University of Pennsylvania Libraries
- ❖ University of Victoria
- ❖ University of Virginia
- ❖ University of Washington
- ❖ University of Waterloo

SIMSSA: Advisory Board Members

- ❖ Douglas Eck (Google)
- ❖ David de Roure (Director, eResearch Centre, Oxford)
- ❖ Susan Vita (Head, Music Library, Library of Congress)

SIMSSA Workshops (2011–)

- ❖ 2017/08/07: XII at CIRMMT (Montreal)
- ❖ 2017/09/22: XIII at Art Gallery of Nova Scotia (Halifax)
- ❖ 2018/05/28: XIV at CIRMMT (Montreal)
- ❖ 2018/07/28: XV at IAML (Leipzig)
- ❖ 2018/11/01: XVI at AMS/SMT (San Antonio)

SIMSSA XII

CIRMMT @Montreal (2017-08-07)



SIMSSA XIII

Art Gallery of Nova Scotia @Halifax (2017-09-22)



SIMSSA XIV

CIRMMT @Montreal (2018-05-28)



SIMSSA XV

IAML @Leipzig (2018-07-27)



SIMSSA XVII

AMS/SMT @San Antonio (2018/11/01)



McGill University, 2014-16

- Identified the repository figure out how to convert this repository into a "machine-readable format"
- Realized that it was not going to suffice to simply digitize the current master edition of the repository wanted to digitize the original manuscript in order to have a digital master edition of the manuscript
- Decided with the repository to have a digital master edition of the manuscript and to have a digital master edition of the manuscript

Achievements since July 2016

- ❖ Andrew Hankinson at Bodleian Library
- ❖ Karen Desmond at Brandeis University
- ❖ 3 PhD Dissertations
- ❖ 2 MA Theses
- ❖ 1 Book (Karen Desmond)
- ❖ 3 Book chapters
- ❖ 2 Journal articles
- ❖ 12 Conference Proceedings articles
- ❖ 89 Presentations
- ❖ Scoring-up project using Verovio completed (Martha Thomae)
- ❖ New neume schema for MEI 4.0 completed

Other Accomplishments

- ❖ Four papers presented at ISMIR 2018 (September)
- ❖ Grant applications for “Mapping the Musical Landscape of the Sixteenth Century” (SSHRC, PI: Julie Cumming) submitted
- ❖ Grant applications for “Digital Analysis of Chant Transmission (DACT),” (SSHRC, PI: Jennifer Bain) submitted
- ❖ Conference papers submitted or in preparation:
 - ❖ New Directions in the Humanities Conference (2)
 - ❖ Digital Humanities Conference (2)
 - ❖ Music Encoding Conference (4)

SIMSSA Team @McGill: Summer 2018



Claire Arthur

Alex Daigle

Eric Liu

Juliette Regimbal

Noah Baxter

Tim de Reuse

Zoé McLennan

Martha Thomae

Laura Beauchamp

Emily Hopkins

Néstor Nápoles

Andrew Tran

Julie Cumming

Yaolong Ju

Minh Anh Nguyen

Vi-An Tran

Nat Condit-Schultz

Andrew Kam

Gustavo Pedro

Gabriel Vigliensoni

Acknowledgements

Christopher Antila
Claire Arthur
William Bain
Ryan Bannon
Laurier Baribeau
Noah Baxter
Laura Beauchamp
Justin Bell
Ruth Berkow
Marina Borsodi-Benson
John Ashley Burgoyne
Greg Burlet
Jorge Calvo-Zaragoza
Remi Chiu
Morgane Ciot
Nat Condit-Schultz
Julie Cumming
Alex Daigle
Marie DeYoung
Tim de Reuse
Natasha Dillabough
Daniel Donnelly
Neda Eshraghi
Meredith Evans
Wei Gao
David Garfinkel

Mahtab Ghamisari
Arielle Goldman
Ryan Groves
Jamie Klassen
Peter Henderson
Jason Hockman
Emily Hopkinson
Andrew Horwitz
Yaolong Ju
Andrew Kam
Anton Khelou
Jamie Klassen
Reiner Krämer
Véronique Lagacé
Saining Li
Eric Liu
Wendy Liu
Evan Magoni
Zoé McLennan
Nicky Mirfallah
Lillio Mok
Alexander Morgan
Catherine Motuz
Maria Murphy
Néstor Nápoles
Clare Neil

Minh Anh Nguyen
Chris Niven
Rory O'Connor
Laura Osterlund
Phyllis Ouyang
Jérôme Parent-Lévesque
Alexandre Parmentier
Gustavo Pedro
Sacha Perry-Fagant
Alastair Porter
Juliette Regimbal
Deepanjan Roy
Zeyad Saleh
Harry Simmonds
Brian Stern
Tristano Tenaglia
Martha Thomae
Andrew Tran
Vi-An Tran
Gabriel Vigliensoni
Tim Wilfong
Mike Winters
Ling-Xiao Yang
Ké Zhang

Acknowledgements



Social Sciences and Humanities
Research Council of Canada

Conseil de recherches en
sciences humaines du Canada

Canada



McGill



Schulich School of Music
École de musique Schulich

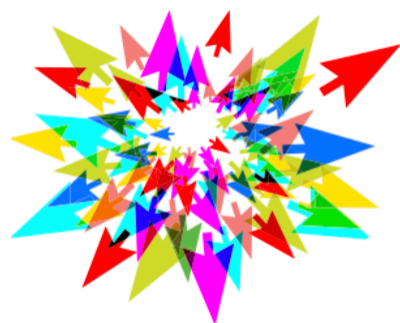


Centre for Interdisciplinary Research
in Music Media and Technology



*Fonds de recherche
Société et culture*

Québec



compute
canada

calcul
canada



Schedule

- 10:00 – 10:15 – Ichiro Fujinaga: *Welcome & Introduction*
- 10:15 – 10:30 – Emily Hopkins: *Search as Access to Digital Music Libraries*
- 10:30 – 10:40 – Gabriel Vigliensoni: *Pixel.js*
- 10:40 – 10:50 – Minh Anh Nguyen: *Interactive Classifier*
- 10:50 – 11:00 – Noah Baxter: *Pitch Detection*
- 11:00 – 11:10 – Tim de Reuse: *Lyric Alignment*
- 11:10 – 11:20 – Zoé McLennan and Juliette Regimbal: *Neon2.js*
- 11:20 – 11:40 – **Coffee Break**
- 11:40 – 11:50 – Alex Daigle and Gabriel Vigliensoni: *Rodan*
- 11:50 – 12:00 – Néstor Nápoles: *Cantus Ultimus and CantusEditor*
- 12:00 – 12:10 – Andrew Kam: *IIIF AV*
- 12:10 – 12:20 – Martha Thomae: *Guatemalan Manuscript Digitization Project*
- 12:20 – 13:30 – **Lunch (provided, please note any dietary restrictions in the comments section of the registration page)**
- 13:30 – 13:40 – Matan Gover: *MusicQuery*
- 13:40 – 13:50 – David Garfinkle: *PatternFinder*
- 13:50 – 14:00 – Eamonn Bell: *Designing incentives for crowdworker collection of a ground-truth dataset for use in score-image annotation tasks*
- 14:00 – 14:20 – Julie Cumming: *Revisiting the Origins of the Madrigal – With Machine Learning*
- 14:20 – 14:40 – Audrey Laplante: *Social barriers to digital scholarship for arts and humanities researchers*
- 14:40 – 15:00 – Jada Watson: *Discographic Metadata as a Research Resource for Studying the Development of Popular Music Genres and Cultures*
- 15:00 – 15:10 – **Coffee Break**
- 15:10 – 15:20 – Gustavo Polins Pedro and Yaolong Ju: *SIMSSA DB*
- 15:20 – 15:30 – Emily Hopkins: *SIMSSA DB Data Model*
- 15:30 – 15:40 – Ichiro Fujinaga: *Extending the SIMSSA DB Model*
- 15:40 – 16:00 – Open discussion: *Infrastructure for music discovery*

The Vision: Global Music Library

Tools



Music Encoding Initiative

Humdrum

music21



Early Music Online

Music Treasures Consortium

Metadata & Text

