The SIMSSA Project

Single Interface for Music Score Searching and Analysis

Andrew Hankinson
Ichiro Fujinaga

NEMISIG • 31 January 2015

Need

Libraries and archives are digitizing their entire collections, both text and music documents (scores).

Large-scale OCR projects (e.g., Google Books) are providing searchable **texts**

Without OMR, we have millions of images of music documents with no idea of their contents

11.5 million total volumes
5.9 million book titles
4.0 billion pages
>**1 Trillion** words
515 terabytes

Goals

Develop tools and techniques for large-scale OMR, analysis, search and retrieval

Comprehensive coverage of music notation styles: ancient to modern

Partner with libraries and content holders to perform the digitization and recognition work (DIY Model)

Methodology

Content Axis	Analysis Axis
Optical Music Recognition	Search & Retrieval
Web Crawling / Musical Image Search	Symbolic Analysis
Workflows for Digitization & Recognition	Human-Computer Interaction / Usability

Current Work

Web-based Optical Music Recognition Software

https://github.com/DDMAL/Rodan

Rodan features

- Python (Django) server
- Workflow-based OMR with interchangeable tools
- Full REST API
- Parallel OMR using Celery + RabbitMQ
- Plugin system for extending to new / different music document types

Demo

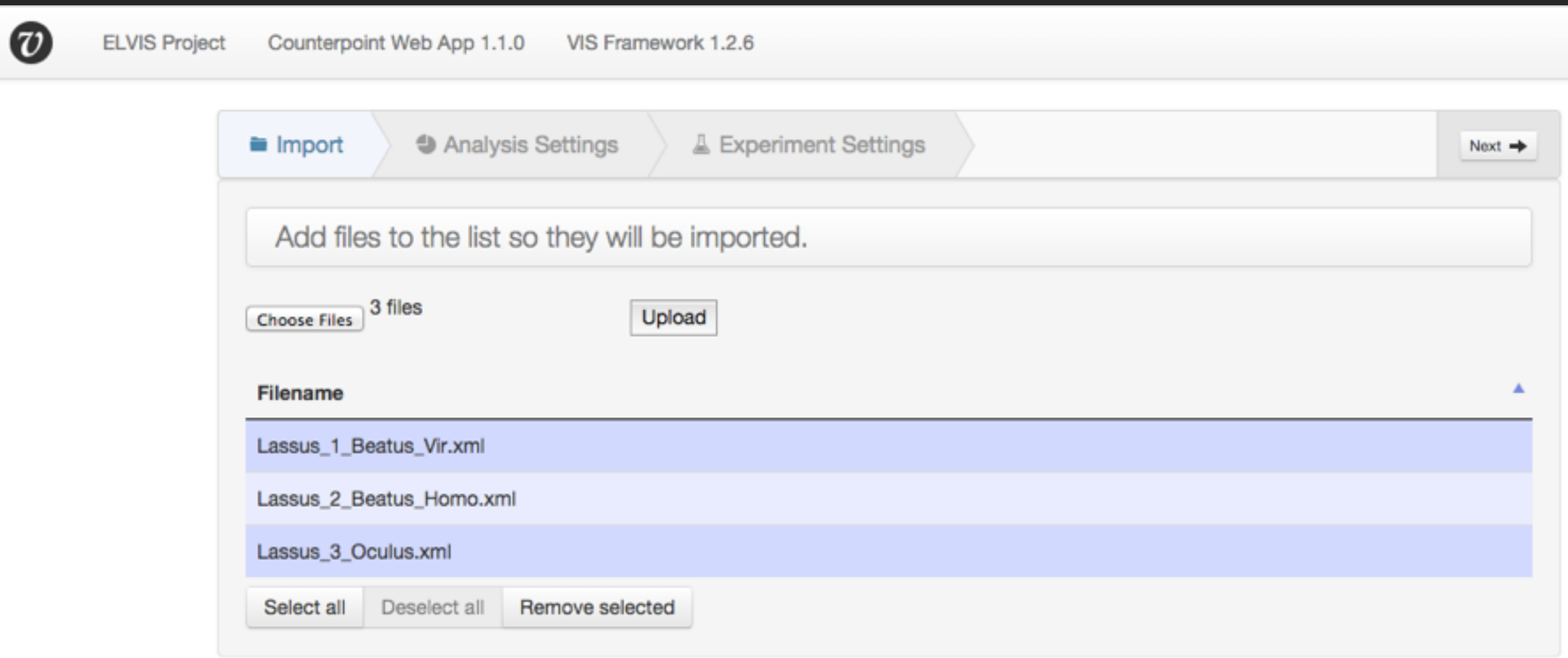
Fast, efficient digital document viewer

https://ddmal.github.io/diva.js

Demo

VIS Counterpoint Webapp

Polyphonic notation indexing and analysis



http://counterpoint.elvisproject.ca

Searching Digital Music Images

Where we are now

Demo

Other Projects

Software

Music image analysis
VIS Indexer
MEI to `music21`
MEI Neume Encoding
libmei

Sibelius MEI Export
ELVIS Database
JavaScript notation
engraving (Verovio)

Techniques

Large-scale Notation Search
Music Encoding (with MEI)

Web-based display
Crowdsourced Correction

Funding

Social Sciences and Humanities Research Council of Canada

Conseil de recherches en sciences humaines du Canada

Canada

Partnership Grant

2014–2021 - $2,726,697

Advisory Committee:

Susan Vita (Head of Music, Library of Congress)

Douglas Eck (Google)

David De Roure (Oxford)

Social Sciences and Humanities Research Council of Canada

Conseil de recherches en sciences humaines du Canada

Canada

22 Partner institutions, including:

Bavarian State Library
Bibliothèque Nationale de France
British Library
Harvard University
Juilliard School
New York Philharmonic
The Walters Art Museum
University of Pennsylvania
University of Washington

Social Sciences and Humanities Research Council of Canada

Conseil de recherches en sciences humaines du Canada

Canada

Insight Grant “Cantus Ultimus”

2014–2019 - $499,694

OMR for Medieval Chant Manuscripts
Partnership with the CANTUS Project

Fonds de recherche
Société et culture
Québec

FRQSC

“Music Information, Research and Infrastructure”

2014–2016 - $54,963

Summary

SIMSSA: 8-year large-scale OMR research project

Search and discover music held in archives and libraries around the world

Building open-source tools to promote and encourage DIY digitization and recognition programs

Our Team

Evan Magoni, Ruth Berkow, Lillio Mok, Wei Gao, Christopher Antila, Moe Touizrar, Julie Cumming, Andrew Fogarty, Andrew Hankinson, Ichiro Fujinaga, Gabriel Vigliensoni, Harry Simmonds, Ryan Bannon, Andrew Horwitz, Jason Leung, Tim Wilfong
… and many former members!

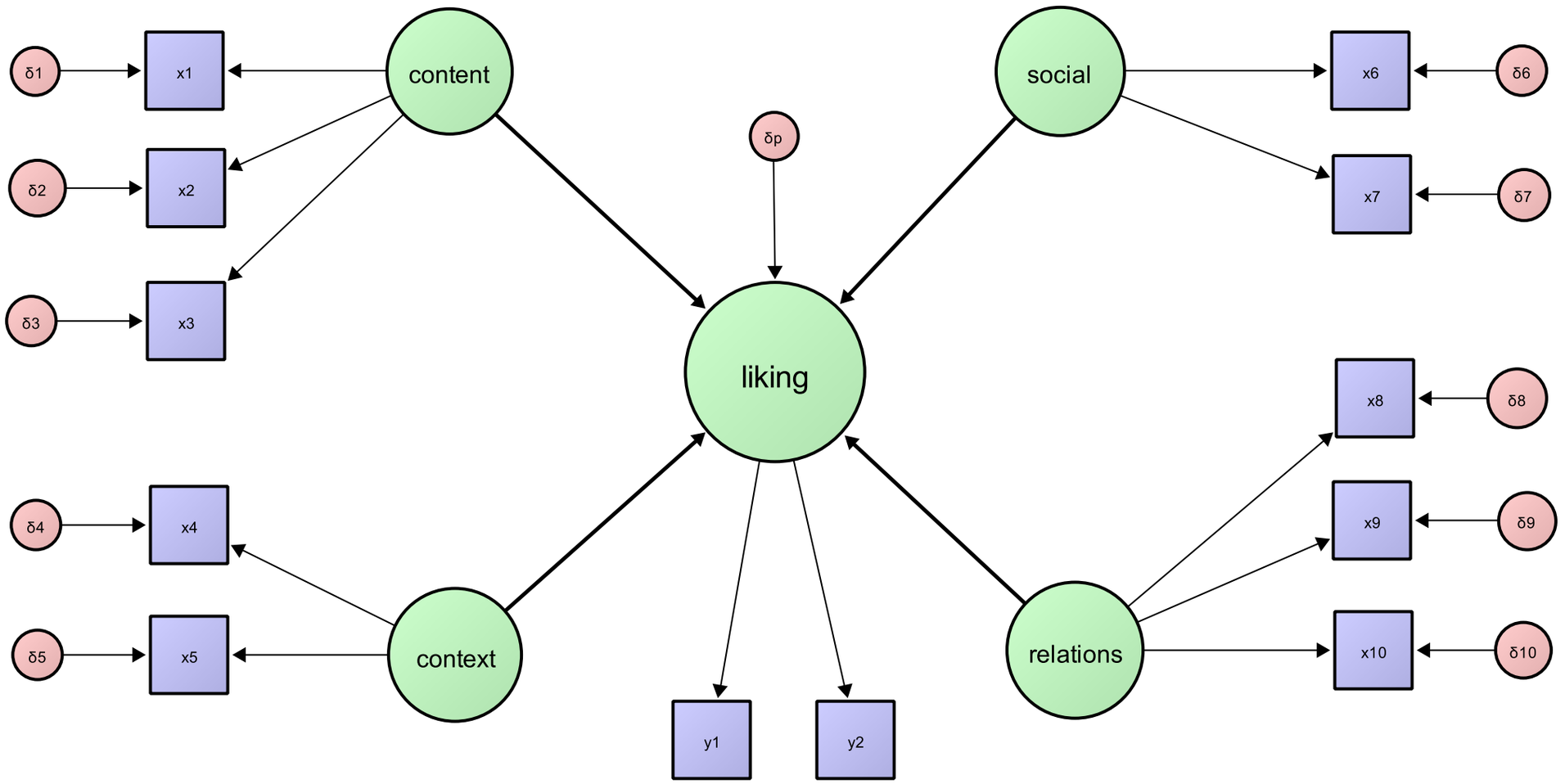
Gabriel Viglienson

THE INFLUENCE OF **MUSIC LISTENING CONTEXT** IN IMPROVING THE PERFORMANCE OF **MUSIC RECOMMENDATION** ENGINES

Gabriel Vigliensoni Martin
gabriel@music.mcgill.ca

Research question: Is the context of music listening (i.e., where people listen to, when they listen to, with whom they listen to music) relevant in improving the performance of automatic music recommendation engines?

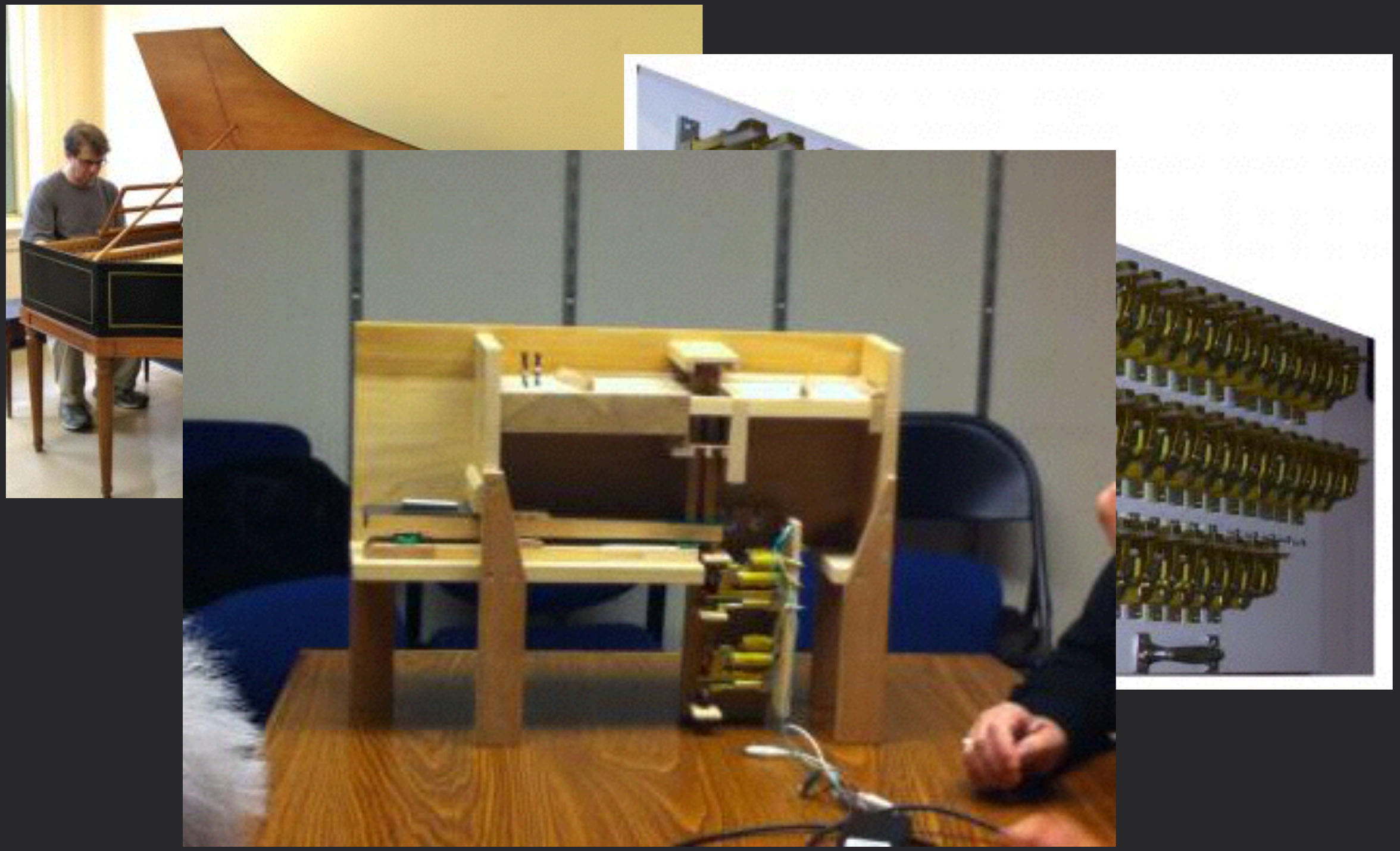
Hypothesis: The context of music listening can be used to improve the performance of music recommendation engines



Structural Equation Modeling of music liking

Datasets: Full listening histories for 600K LastFM's listeners (27MM logs, 7M tracks, 900K albums, 600K artists)
Data and features from Musicbrainz, Echonest, AcousticBrainz, and LastFM (Freebase?)

Research in Automatic Harpsichord Performance



Research in Automatic Harpsichord Performance

- Automatic figured bass realization and performance
- Score following of a live soloist

PI: Hank Knox

Harpsichord Maker: Yves Beaupré

Masters Student: Jason Leung

Thank you.

http://simssa.ca

http://ddmal.music.mcgill.ca

http://github.com/DDMAL

andrew.hankinson@mail.mcgill.ca

McGill

Schulich School of Music
École de musique Schulich

Social Sciences and Humanities Research Council of Canada
Conseil de recherches en sciences humaines du Canada

Canada

Fonds de recherche Société et culture Québec

CIRMMT Centre for Interdisciplinary Research in Music Media and Technology

DDMAL DISTRIBUTED DIGITAL MUSIC ARCHIVES & LIBRARIES LAB