McGill DDMAL DISTRIBUTED DIGITAL MUSIC ARCHIVES & LIBRARIES LAB CIRMMT Centre for Interdisciplinary Research in Music Media and Technology

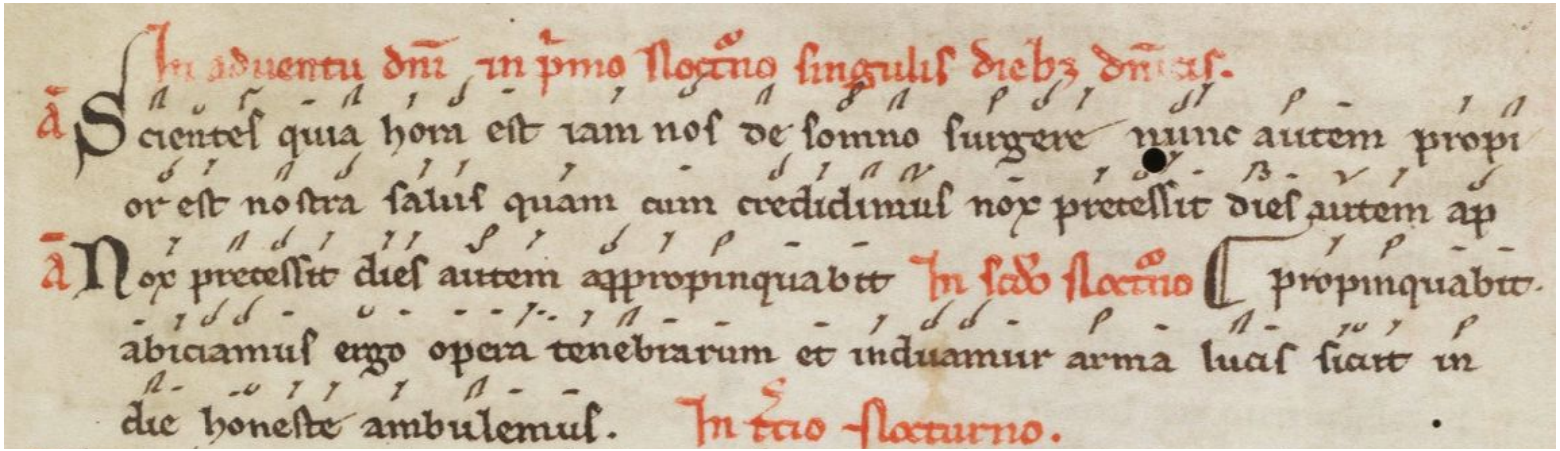
CantusEditor and Cantus Ultimus

Néstor Nápoles López
SIMSSA workshop XVII, December 1, 2018

CantusEditor

CantusEditor

An MEI (Music Encoding Initiative) online editor for staffless neume notation



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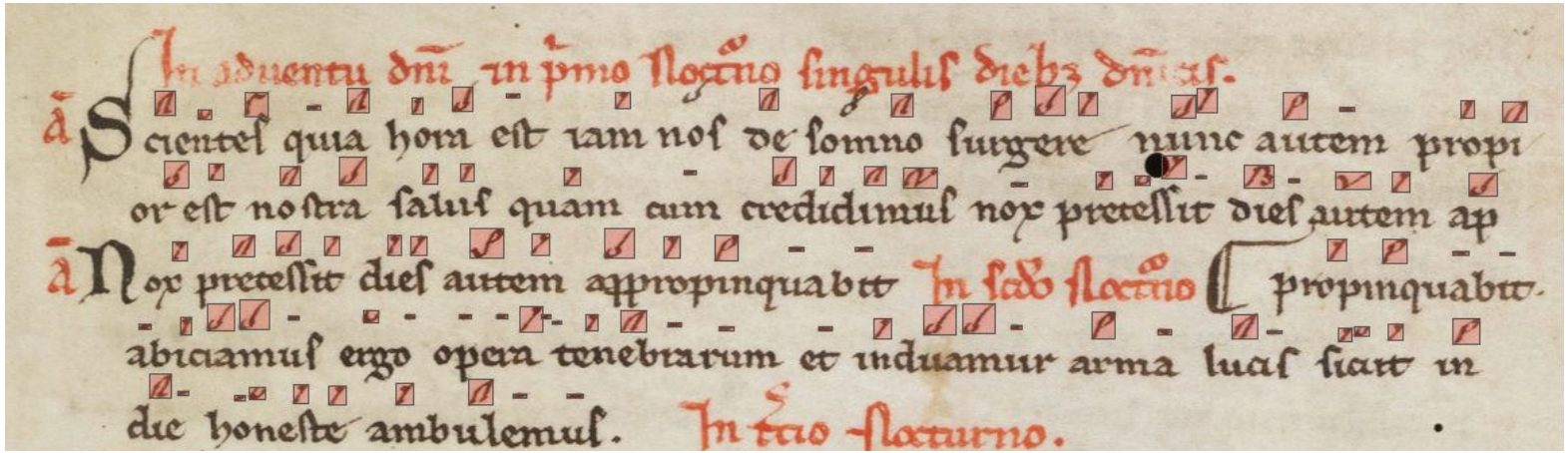

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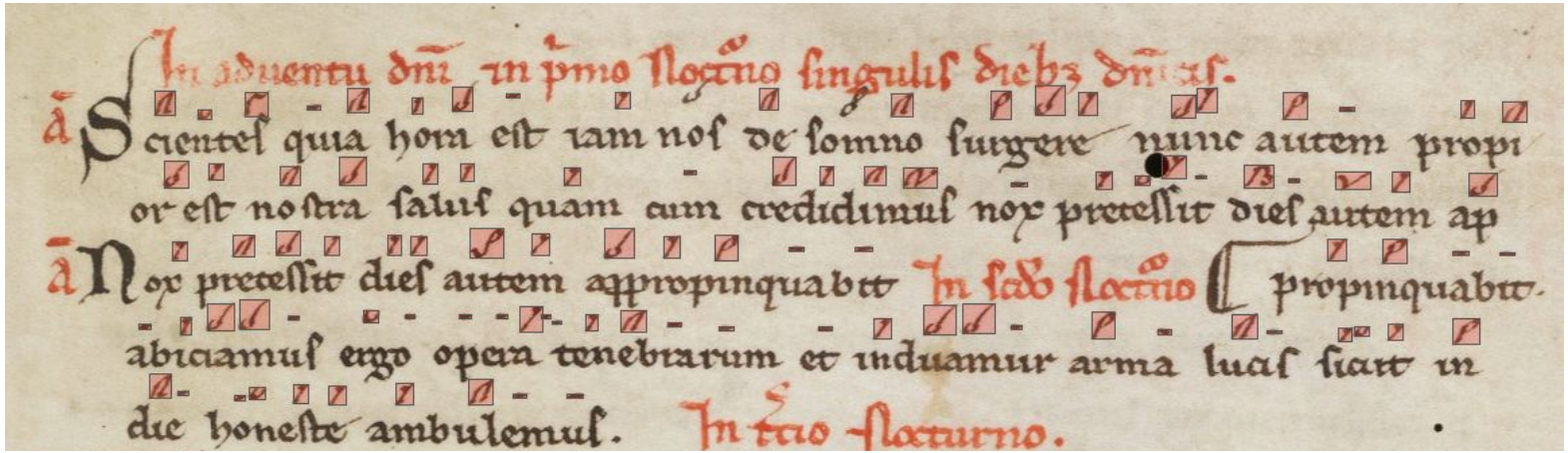
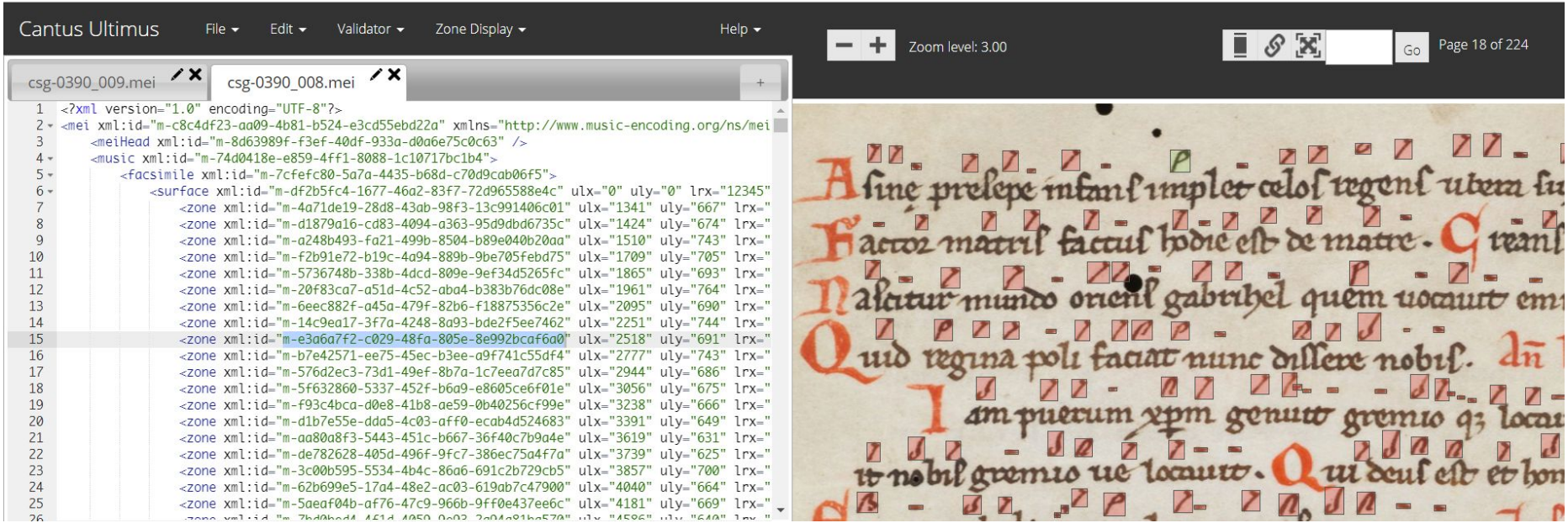
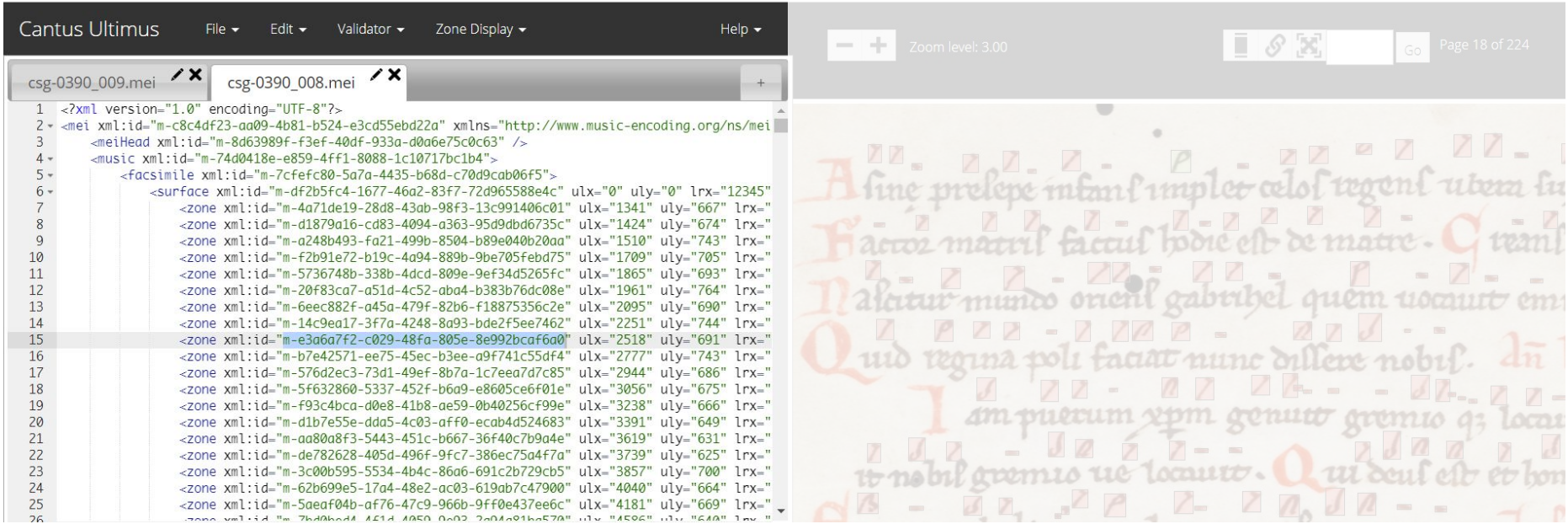


CantusEditor allows a user to correct scores generated using Optical Music Recognition (OMR)



CantusEditor consists of a text editor with the MEI score (left) and a high-resolution image of the manuscript (right). The content of the MEI score is rendered on top of the manuscript image



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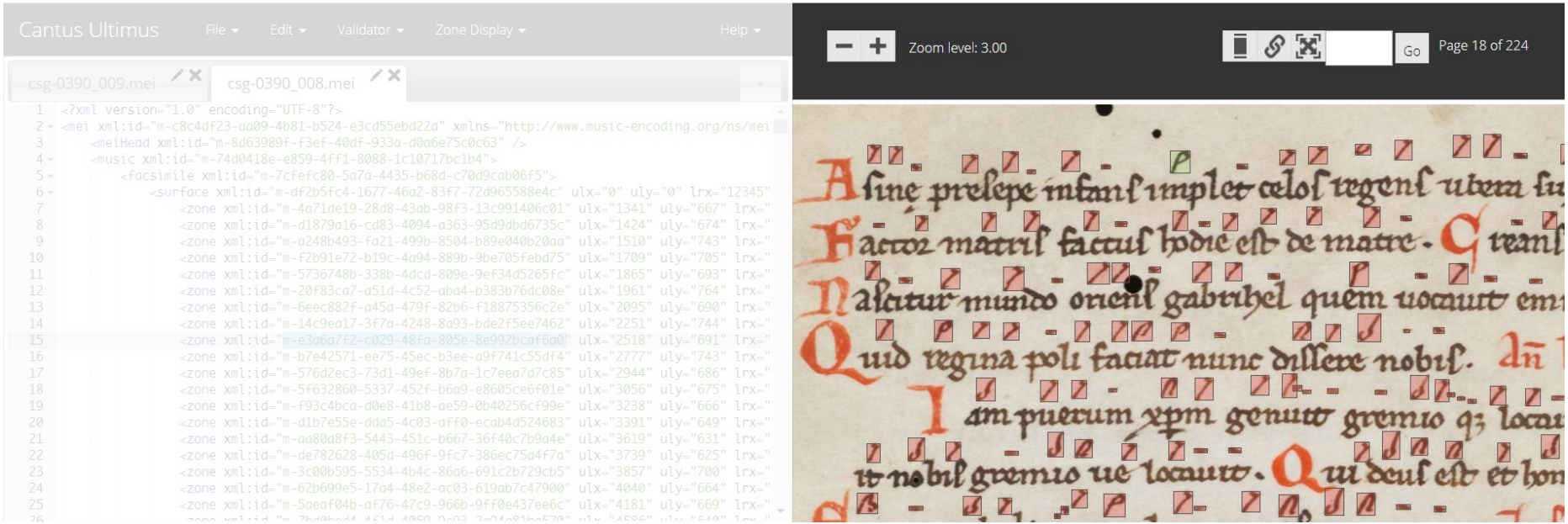

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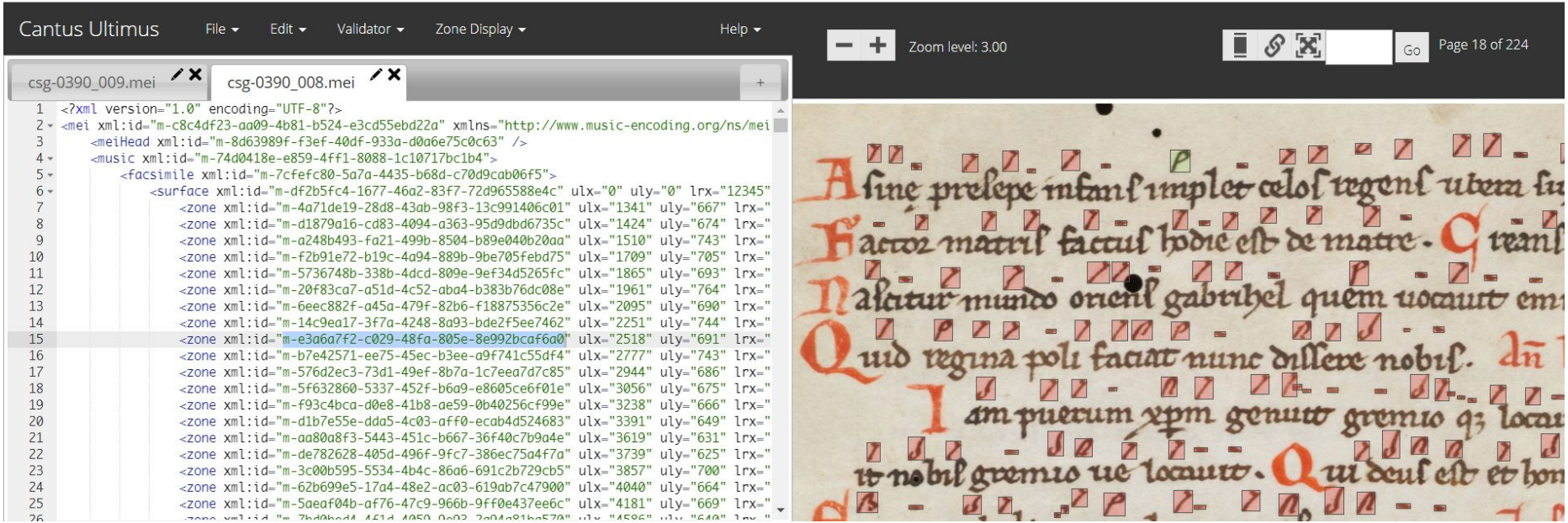

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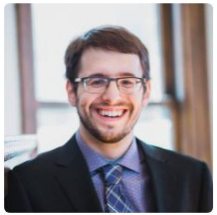

Andrew Horwitz

- https://github.com/ahwitz
- Started and worked on the project from 2014 - 2015

Should be hopefully presenting this slide

Néstor Nápoles López

- https://github.com/napulen
- Retaking the project in 2018

CantusEditor

Users can immediately observe the changes of an MEI file rendered on top of the original manuscript

It also provides an interface for quickly finding

- Semantic information of each neume
- Bounding box information of each neume

Note: Not to confuse *CantusEditor* with *Neon.js*, another MEI online editor we develop, *Neon.js* is not designed to work with staffless neume notation

CantusEditor - Technical summary

- Is made with plain HTML, CSS, and (mostly) **JavaScript**
- High-resolution images supported by **diva.js**
  - Images accessed remotely through the IIIF (International Image Interoperability Framework)
  - Images can be hosted virtually anywhere!
- Text editor powered by the **Ace.js**
- Users can save and load MEI files for a particular page of a manuscript in the web interface, the web interface renders this score on top of the original manuscript

CantusEditor - Status of the project

- Initial version (2014-2015)
  - Website repository with no permanent address to the public
  - Made with a single example in mind (St. Gallen's CSG-390)
  - Working with a local MEI file

- Current version (2018)
  - Public website integrated with GitHub-Pages https://ddmal.github.io/CantusEditor/
  - Support for external manuscripts and now also external MEI scores
  - Improvements in the visual interface, particularly, it is easier now to move between neumes in the manuscript and the text editor

Cantus Ultimus

Cantus Ultimus

Cantus Ultimus is a project funded by a SSHRC Insight grant

Take advantage of chants' text and melody databases like Cantus (http://cantus.uwaterloo.ca/) and combine it with state-of-the-art Optical Music Recognition (OMR) technology to provide a fully-searchable interface of music and text

A bit *cantused* by the terminology?

- CantusEditor
  - An online music notation (MEI) editor
- Cantus Ultimus
  - A website that combines the data of the Cantus Manuscript Database with Optical Music Recognition to provide an improved search interface
- Cantus (Cantus Manuscript Database)
  - A really important database of chants based in University of Waterloo
- Cantus Index
  - A partnership of different universities and researchers across the world with a common interest for chant projects and databases
  - **If you like chants, you visit this:** http://cantusindex.org/home

Cantus *and* ***Cantus Ultimus*** *are part of* ***Cantus Index***

Cantus Ultimus

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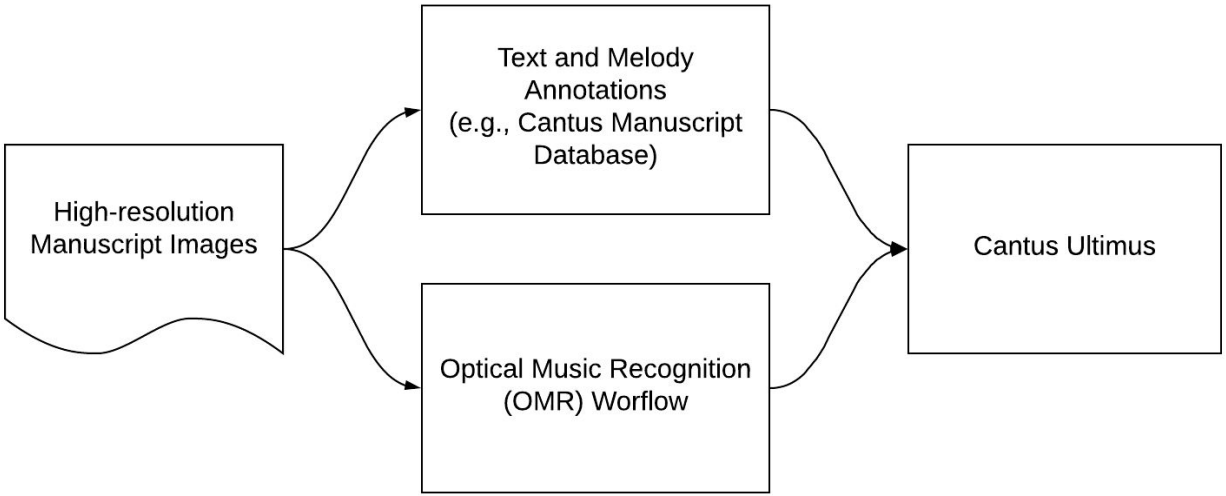

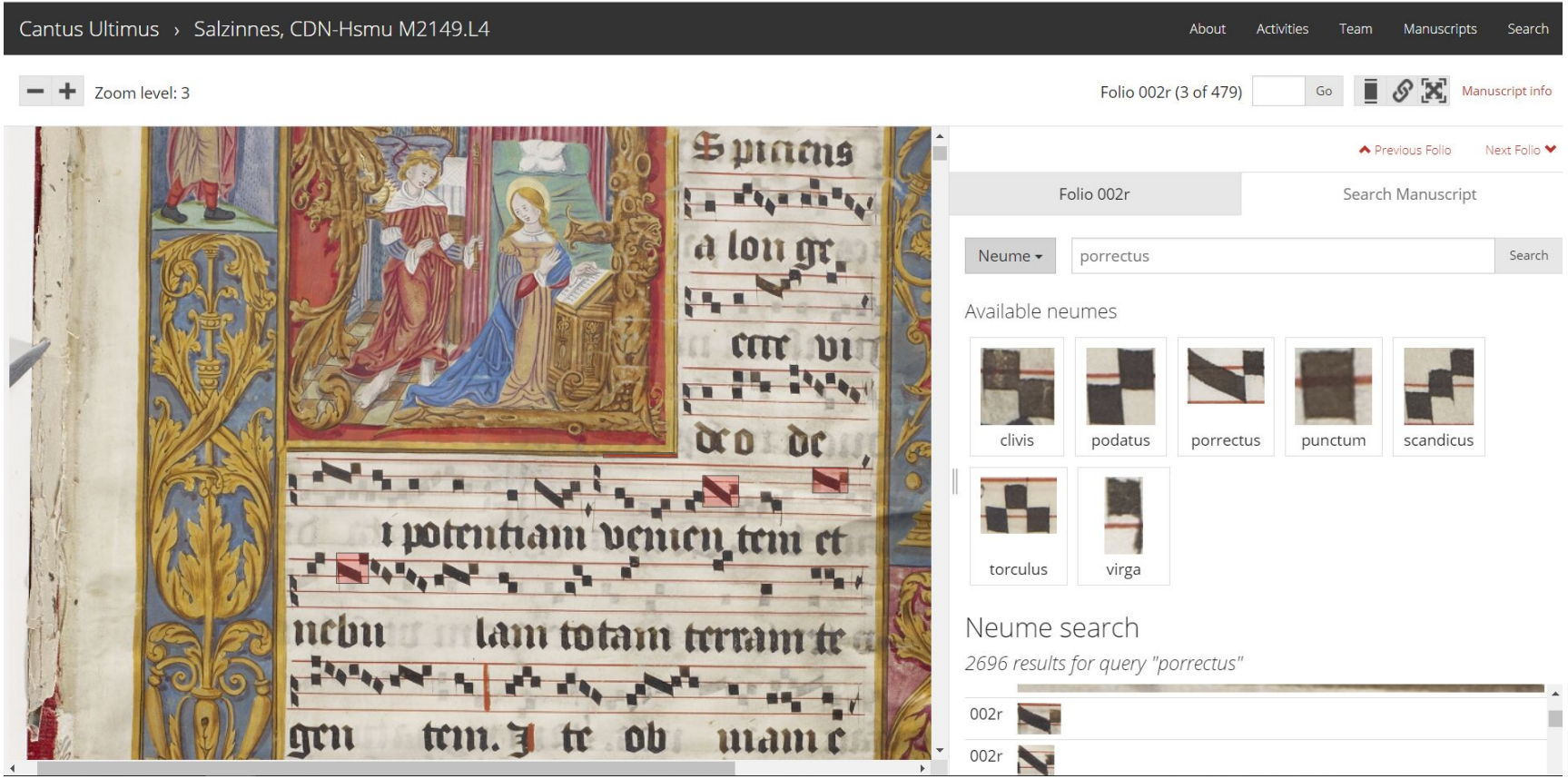

The highlighted neumes in the manuscript are powered by state-of-the-art Optical Music Recognition (OMR) while searching by text or melodic content is possible thanks to the annotations in the Cantus Manuscript Database

Cantus Ultimus - History

- Cantus Ultimus
  - Ichiro Fujinaga
  - Julie Cumming
  - Andrew Hankinson
  - Alessandra Ignesti
  - Jennifer Bain
  - Barbara Swanson
  - Inga Behrendt
  - Elsa De Luca
  - Kate Helsen
  - Jan Koláček
  - Debra Lacoste
  - Sarah Ann Long
- Cantus Ultimus Website
  - Andrew Horwitz (2014)
    - Initial template of a website (now deprecated)
  - Wei Gao (2014)
    - Started the current version of the website
  - Andrew Fogarty and Andrew Horwitz (2014 - 2015)
  - William Bain (2015 - 2016)
  - Jérôme Parent-Lévesque (2016)
  - Néstor Nápoles López (2018)

Cantus Ultimus - Technical summary

- Relatively large software project

- Combination of different technologies
  - **Django** web application
  - Working with a **PostgreSQL** database
  - Indexed and cached by **Apache Solr**
  - Served through **gunicorn** and **nginx**
  - Layer of static **JavaScript** code
  - Containerized using **Vagrant**

Cantus Ultimus - Current status

- Current status
  - We have more annotated manuscripts that should be added to the Cantus Ultimus website today (yesterday)
  - Original developers are not in DDMAL anymore
  - Completing all the necessary documentation about the website, how to maintain it, and how to update it
  - Continuing the Vagrant environment that was started in order to facilitate the maintenance, but unfortunately, has not been finished yet
  - Add the new manuscripts in our waitlist and make them available to the public!

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Cantusize the world!

Thank you

Please visit the websites

CantusEditor
https://ddmal.github.io/CantusEditor/

Cantus Ultimus
https://cantus.simssa.ca/

Thanks to our sponsors

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