Paged Media Project

Developing a Hydra-based page turning application and
turning a Plum into a Pumpkin

William G. Cowan, Library Technologies
Nicholas Homenda, Digital Collections Services
Digital Library Brown Bag Series, February 1, 2017
#dlbb
Agenda

● Something Old
● Something New
● Something Borrowed
● Something Blue
Something Old: Project History

- 1995: intend to create databases of score notation
- 1999: planned enhancement
Variations Online Scores Prototype

VARIATIONS Prototype: Online Musical Scores

The following selections lead to experimental prototypes of the ways in which musical scores and recording liner notes might be used in conjunction with sound recordings. Variations@slb.indiana.edu can help us in our ongoing development of the project.

Due to the early developmental status of this phase of VARIATIONS, we will not be able to guarantee continued availability of this resource or any of its component interfaces at this time.

Online scores: Opera Literature
- Selected scores drawn from the Cook Music Library's holdings
- Scores are in the public domain
- Available from anywhere
- Designed to be viewed on a 17-inch monitor with a screen resolution of 1024 x 768
- Designed primarily for online display; not for printing.

Online scores: Song Literature
- Selected scores drawn from the Cook Music Library's holdings
- Scores are in the public domain
- Available from anywhere
- Designed to be viewed on a 17-inch monitor with a screen resolution of 1024 x 768
- Designed primarily for online display; not for printing.

Online scores: Orchestral and Choral Literature
- Selected scores drawn from the Cook Music Library's holdings
- Scores are in the public domain
- Available from anywhere
- Designed to be viewed on a 17-inch monitor with a screen resolution of 1024 x 768
- Designed primarily for online display; not for printing.

Online scores: Chamber Music Literature
- Selected scores drawn from the Cook Music Library's holdings
- Scores are in the public domain
- Available from anywhere
- Designed to be viewed on a 17-inch monitor with a screen resolution of 1024 x 768
- Designed primarily for online display; not for printing.

Online scores: Piano Literature
- Selected scores drawn from the Cook Music Library's holdings
- Scores are in the public domain
- Available from anywhere
- Designed to be viewed on a 17-inch monitor with a screen resolution of 1024 x 768
- Designed primarily for online display; not for printing.
Variations Online Scores Prototype

Berlioz
Complete Works: Symphonies Part I

View full bibliographic record from IUCAT
View larger version of this score

Contents
Front cover
Title page
Intruccation
Notes
Symphonie fantastique
Movement I
Réves - Passions
Movement II
Un bal
Movement III
Scene aux champs
Movement IV
Marche au tombeau
Movement V. Souge d'une nuit du sabbat
Larghetto
Ronde du Sabot
Deux jons et Ronde du Sabot
Symphonie funèbre et triomphale
Marche Funebre
Oraison Funèbre
Apothrose
Variations Musical Scores
Variations Musical Scores

- ~1000 scores and accompanying materials included
- Digitized locally
- Metadata from IUCAT
- Structure from input process
Shortcomings

- Djvu derivatives
- Variations client(s)
- Quicktime for Java
Something New: Paged Media Project

- Collaboration with IUPUI forged in 2013-2014
- IU Bloomington: Replace Variations Scores
- IUPUI: Replace Content DM
In 2014...

- Worthwhile
- No agreed-upon content modeling standard
- Fedora 3
In 2014/2015...

- Worthwhile Curation Concerns
- No agreed-upon content modeling standard PCDM
- Fedora 3 Fedora 4
Howdy

Repository is a secure repository service enabling the Your Institution community to share its research and scholarly work with a worldwide audience. Faculty, staff, and students can use Repository to collect their work in one location and create a durable and citable record of their papers, presentations, publications, data sets, or other scholarly creations.

**Ying_page**
- **Creator:** wang58
- **Rights:** [Creative Commons Public Domain Mark](http://creativecommons.org/publicdomain/mark/1.0/)
- **Resource Type:** Paged Work

**ying_collection**
- **Subject:** ying collection
- **Creator:** ying wang
- **Resource Type:** Collection

**Songs 1896-1914**
- **Creator:** Ravel, Maurice, 1875-1937
- **Resource Type:** Musical Score
Analysis

- Content analysis
- Workflow analysis
- Platform analysis
Plum. A Hydra head to support digitization workflows

Plum is a Hydra head based on CurationConcerns, with two types of works:
- ScannedResource: a book or other resource composed of one or more scanned pages
- MultiVolumeWork: a book set, sammelband or other resource composed of multiple ScannedResources

Features
- Drag-and-drop tools for reordering FileSets and editing structure
- Generating IIIF manifests for Collections and Works based on that structure
- Building PDFs of Works based on their IIIF manifests
- Performing OCR with Tesseract
- Simple state-based workflow
- Retrieving external metadata from our finding aids and catalog web services

Dependencies
- Redis
  - Start Redis with `redis-server` or if you’re on certain Linuxes, you can do this via `sudo service redis-server start`
- Kakadu
  - The installer doesn’t work on Mac OS X 10.11 (El Capitan), but the files `kiku_compress` and `1bkda_v7r7r7r7` can be extracted from the download packages and used by manually installing them in `/usr/local/bin` and `/usr/local/1ib` respectively.
- Tesseract
  - Version 3.04 is required. You can install it on Mac OS X with `brew install tesseract --with-all-languages`. For Ubuntu you’ll have to compile it.
- RabbitMQ (Optional)
  - Start with `rabbitmq-server`
  - Used for publishing create/update/delete events for systems such as Pomegranate

Running the Tests
Something Borrowed: Plum

Princeton (Plum):

https://lonewolflibrarian.wordpress.com/2016/05/12/princeton-digitization-plum-demo/
Something New: Hydra / Fedora Technology Stack

- Fedora 4.7.0
- Hydra
- IIIF - International Image Interoperability Framework
- Enterprise Scholarly Systems
Enterprise Scholarly Systems

IU’s Enterprise Scholarly Systems (ESS) initiative is a new collaborative effort amongst the libraries at IU Bloomington and IUPUI in Indianapolis and IU’s central IT organization, University Information Technology Services. Implemented as a virtual organization spanning all three entities, the goal is to create an enterprise repository infrastructure for IU’s eight campuses based on Hydra and Fedora.

**IUB/IUPUI Libraries roles:**
- Software development
- User support and consultation
- Research and development

**UITs roles:**
- Production hosting of Fedora and associated services
- Production hosting of Hydra heads
- Online and preservation storage

**Benefits**
- Developers spend more time on development and less time on infrastructure
- Better policy compliance
- Disaster Recovery and Business Continuity
- Improved Monitoring and Security
- Central Funding of Storage
- Easier integration with other enterprise IT services
- Leverage consistent infrastructure across campuses

**Potential Services**
- Shared Services across multiple campuses
- Virtual Services using Docker to replicate applications
- Spotlight supported Exhibits

** desarrolladores working on general HyBox code and Mediated Deposit**
**Paged Media PuMPkin** Based on Plum from Princeton University
**CBRC Center for Biological Research Collections** Based on Sufia 7
**HydraDAM2 with WGBH Boston** Digital Preservation Repository including Asynchronous Storage
**Avalon** Audio-Video Media Presentation

**Development Environment**

**Test Servers**

**Software Development Teams**

**IUB Indiana University Bloomington**
**IUPUI Indiana University-Purdue University Indianapolis**
**Other Campuses**

Contribute resources to development teams
Something New: PuMPkin (er, Pages Online)

https://pages.dlib.indiana.edu
Link to IU Catalog - another way
Viewing the Scores
Administration
Change Content
Upload New Content
Change Structure
Something New: PuMPkin (er, Pages Online)

https://pages.dlib.indiana.edu

<table>
<thead>
<tr>
<th>Pages Online</th>
<th>Type keywords in here</th>
<th>Show all items</th>
<th>Log in</th>
</tr>
</thead>
</table>

1. Fontane di Roma, poema sinfonico per orchestra
   - Subject: Symphonic poems
   - Creator: Respighi, Ottone, 1870-1936
   - Publisher: C. Ricordi
   - Date Created: 1937
   - Resource Type: Musical Resource
   - Material: http://scholar.indiana.edu/scholar/search/resource/WR8965
   - Pages: 10

2. Quartet, G major, for 2 violins, viola and violoncello
   - Subject: String quartets
   - Creator: Franz, Olivier, 1822-1893
   - Publisher: Editions Salabert and Ernest Schuberth
   - Date Created: 2006
   - Resource Type: Musical Resource
   - Material: http://scholar.indiana.edu/scholar/search/resource/WR8968
   - Pages: 68

3. Gymnopédies, Gnomes, and other works for piano
   - Subject: Piano music and Piano music (4 hands)
   - Creator: Satie, Erik, 1866-1925
   - Publisher: Oeuvre
   - Date Created: 1999
   - Resource Type: Musical Resource
   - Material: http://scholar.indiana.edu/scholar/search/resource/WR8969
   - Pages: 124
Something Blue - the Nature of the Hydra

Hyrax

Hyku
Questions?

wgcowan@iu.edu

nhomenda@indiana.edu