The Library Technology Prototyping Service at Illinois: products and initiatives

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minrvapproject.org
Outline

• Goals, Funding, Management
• Accomplishments
• Communication
• Mentoring/Staffing
Goals

• Recruit students from diverse perspectives to library and information science careers by way of paid technical internships.
The Prototyping Group
Goals

• Produce efficiencies in library operations through the creation of lightweight technology products that advance services to end users and Library employees.
Funding

• One time money for 3 years of funding.
  – Leveraged code and middleware of previous grants to bootstrap efforts.
Managing prototyping services

- Student talent from technical majors
  - Requires frontloading of project objectives early in semester
  - Challenging work; supportive feedback
  - Sharing design choices; following student directions in design while steering toward impactful library services
Managing

• Implementations across units
• Collaboration with many departments
  – Security audits for production systems
  – User tests with front line employees
  – Training staff in variety of units
Major Accomplishments

• IWonder (Ask a Librarian)

• Mobile App Wayfinding modules in Minrva app

• Desktop access to Wayfinding support
  – Backbone.js web app
I. Ask a Librarian Service
Development Team

• Collaboration with CS courses in Software Engineering
• Visiting Research Programmer in Library
• Student Intern from the Technology Prototyping Service
IWonder

• Security Audit
  – Two rounds
  – Overall system load tested
  – Common security hacks/phishing vulnerabilities by way of IBM's AppScan
IWonder

• Chat.library.illinois.edu
  – Download operators manual
  – Code to be available in open source soon
IWonder

• Path from prototype to production is a big leap.
  – Stabilization
  – Communication
II. Mobile wayfinding apps

• Wayfinder is a Minrva mobile app module. It displays a map of the unit library -- a red dot indicates where searched for item is located in the stacks.
Early wayfinding iteration
Polished App on Google Play
To build a wayfinding module

- A relational database for call numbers in stacks
- Business logic for mapping
- A view of the map on the phone using Android and iOS views
Main Stacks: over 5 million items
All Minrva modules are RESTful
III. Minrva Web app

Select location

Minrva provides location-based information including maps to items and recommendations for related content. Choose your starting location from the drop box below.

Choose location...

University of Illinois at Urbana-Champaign >> Main Stacks
University of Illinois at Urbana-Champaign >> ACES
University of Illinois at Urbana-Champaign >> Music & Perf. Arts
University of Illinois at Urbana-Champaign >> Undergrad.
Minrva Web app

Catalog Search

Search by keyword, subject, title. You can refine your search by format type using the dropdown.

- cats
- All
- Any format

The cats
- Author:
- Publication Year: 2012
- Format: DVD

Cats in space and other places
- Author:
- Publication Year: c1992
- Format: Book
Minrva Web app

<table>
<thead>
<tr>
<th>Call Number</th>
<th>QA76.76.A65 H557 2012</th>
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<tr>
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<td>73</td>
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<tr>
<td>Title</td>
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![Diagram of a library floor plan with labels for Reading rooms, Copiers, Magazines Journals, Computer terminals, Courtyard, and other areas.](image)
Web app technologies

• Same RESTful source, but web views are with Backbone.
• It is lightweight and has few dependencies.
• The structure Backbone gives to web apps makes development of single page apps quick and efficient.
Development version

• minrva-dev.library.illinois.edu
Communication

• Lightning Talk at Faculty Meetings
• Technology Prototyping Service Open House
• Student outreach
  – Department of Computer Science
  – Illinois Informatics Initiative
  – Women in Engineering
Technology Prototyping on Display
Mentoring

• The service has had successes in funneling students to Library and Information Science Degree programs.
Research Mission

• Since the academic technology research environment is dynamic and changing, TPS processes have operationalized an iterative rapid design process that is sourced from a services perspective and based on consultation with users and staff.
Research Mission

• Production code is serving the research needs of staff, student and faculty; in the case of the chat system (IWonder) the system successfully serves the teaching, learning, and research needs for campus wherever they are and whenever they choose to seek the expertise of the library.
Education and Mentoring

• Advancing technical skills of student interns
  – While not all interns go on to apply to library programs, they are in fact better able to compete for other technical internships. Students trained by the library found positions in EBay, Oracle, and GE.
Beta & exploratory

• Room Reserve API
• Wireframes of Library Gateway
• Data Visualization of Library Circulation Trends
Room Reserve API

• An API for room reserves processing built from DIBs xml.

• Modularizing the room reserves data allows this set of information to be served from a single data source and ported to multiple platforms and views.

• It is likely this API will be incorporated into a module of the new library gateway.
Room Reserve API

Buildings
GET - http://minerva-dev.library.illinois.edu:8080/roomreserve2/roomreserve/buildings
GET JSONP - http://minerva-dev.library.illinois.edu:8080/roomreserve/roomreserve/buildingsjsonp

Rooms
GET - http://minerva-dev.library.illinois.edu:8080/roomreserve2/roomreserve/rooms
GET JSONP - http://minerva-dev.library.illinois.edu:8080/roomreserve/roomreserve/roomsjsonp

Building Filtering
GET http://minerva-dev.library.illinois.edu:8080/roomreserve2/roomreserve/buildings

<table>
<thead>
<tr>
<th>Input Name</th>
<th>Value Type</th>
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Room Reserve API

```json
},
- {
  description: "Grainger Engineering Library",
  lon: -88.226908,
  lat: 40.112483,
  name: "Grainger Engineering Library",
  id: 1001
},
- {
  description: "SSHEL, 1st floor, Main Library (1408 W. Gregory Dr)",
  lon: -88.22843,
  lat: 40.104706,
  name: "Social Sciences, Health, and Education Library",
  id: 1002
},
- {
  description: "North side of Upper Level of Undergraduate Library",
  lon: -88.227185,
  lat: 40.104722,
  name: "Undergraduate Library Media Commons",
  id: 1003
},
- {
  description: "Undergraduate Library",
```
Wireframes of Library Website
Gateway Wireframe

Study Rooms (by Library)

- ACES - Funk (includes CPLA Reference & Resource Center):
  1101 S. Goodwin
  Campus map

- ACES Study Room 301
  Collaboration table with whiteboard. Dry erase markers and erasers can be checked out from the ACES library circulation desk on the second floor.
  Building map

- ACES Study Room 305
  Collaboration table with whiteboard. Dry erase markers and erasers can be checked out from the ACES library circulation desk on the second floor.
  Building map

- ACES Study Room 309
  Collaboration table with whiteboard. Dry erase markers and erasers can be checked out from the ACES library circulation desk on the second floor.
  Building map

- ACES Study Room 401

Check room availability and reserve here >>
Data Visualization of Circulation Trends
Elasticsearch visualization

• Exploring the Elasticsearch with Kibana stack for next iteration of visualization trends include time series checkout trends of loanable technology.
  – Offer real-time analysis of data; treating our middleware as the pipeline for this stream.
Next year of work

• Continue Library homepage redesign
• Discovery and access R & D in collaboration with Engineering Library
• Partner with like minded library labs
  – Open source promising software work
    • Chat software
    • OCR development in mobile apps
Thank you

• Questions
  – jimhahn@illinois.edu
Portfolio of work

• dunatis.grainger.uiuc.edu
Thank you

My thanks to Ben Ryckman, Maria Lux for Minrva Wayfinding development and support, and Nate Ryckman and Ricky Lung on IWonder programming, and Georgy Petukhov for Backbone.js investigation and design.