Nominee: Harvard Law Library
Project: Stacklife: A Virtual Browser Guided by Community Relevance

Stanford Prize for Innovation in Research Libraries (SPIRL) Entry

Nominator: Jonathan Zittrain, Vice-Dean for Library and Information Resources, Harvard Law School; Professor of Law at Harvard Law School and the Harvard Kennedy School of Government; Professor of Computer Science at the Harvard School of Engineering and Applied Sciences; Co-founder of the Berkman Center for Internet & Society

Nominator’s Statement

I am pleased to nominate Harvard Law Library’s Stacklife, http://stacklife.harvard.edu/, for the Stanford Prize for Innovation in Research Libraries. Stacklife is a virtual browser for library collections that was developed at the Harvard Library Innovation Lab at the Harvard Law Library. Stacklife is currently being used as a browser for the Harvard Library collections. It has also been adopted as the default book browser for the Digital Public Library of America.

Stacklife enhances a user’s ability to explore not only a library’s collection, but how that collection has been used by the library’s community. It helps researchers and scholars find what they’re looking for, understand it in context, make wise decisions about its relevance, and discover the next resources they need to explore.

Stacklife takes lessons learned from commercial entities like Amazon and Google and adapts them to the library context. We aim to expand Stacklife to become an integrated multi-library platform that leverages what every participating library knows.

Stacklife is an Open Source project.

Stacklife is an application that runs on top of another project from the Harvard Law Library, LibraryCloud. I am nominating LibraryCloud as well, and suggest that the two could be considered together.

The innovation: What Stacklife is

Stacklife is a way to browse a virtual library guided by community relevance. It instantiates several key ideas:

- Books are always understood within a context. So, Stacklife always shows works in a meaningful context of other items. This not only reinforces the point that no book stands alone, but also encourages serendipitous exploration.
- People already know how to use shelves. So, Stacklife shows works on virtual shelves.
- The digital world enables items to be organized and re-organized in multiple ways. So, Stacklife lets the user pivot without impediment, seeing the work on a new shelf instantly.
In a scaled environment, the way works are used by the community is crucial metadata. So, Stacklife ranks works based on a score computed from measures of various types of usage.

To get the most value from everything that libraries know, libraries should provide open platforms. Stacklife is an early proof of concept for the value and practicality of the library metadata platform (“LibraryCloud”) on top of which it runs.

Stacklife’s distinguishing features include:

- It always shows a book (or other item) in a context of other books.
- That context is represented visually as a scrollable stack of items — a shelf rotated so that users can more easily read the information on the spines.
- The stack integrates holdings from multiple libraries.
- That stack is sorted by “StackScore,” a measure of how often the library’s community has used a book. At the Harvard Library installation, the computation includes ten year aggregated checkouts weighted by faculty, grad, or undergrad; number of holdings in the 73 campus libraries, times put on reserve, etc.
- The visualization is simple and clean but also information-rich. (a) The horizontal length of the book reflects the physical book’s height. (b) The vertical height of the book in the stack represents its page count. (c) The depth of the color blue of the spine indicates its StackScore; a deeper blue means that the work is more often used by the community.
- When clicked, a work displays its Library of Congress Subject Headings (among other metadata). Clicking one of those headings creates a new stack consisting of all the library’s items that share that heading.
- If there is a Wikipedia page about that work, Stacklife also displays the Wikipedia categories on that page, and lets the user explore by clicking on them.
- Clicking on a work creates an information box that includes bibliographic information, real-time availability at the various libraries, and, when available: (a) the table of contents; (b) a link to Google Books’ online reader; (c) a link to the Wikipedia page about that book; (d) a link to any National Public Radio audio about the work; (e) a link to the book’s page at Amazon.
- Every author gets a page that shows all of her works in the library in a virtual stack. The user can click to see any of those works on a shelf with works on the same topic by other authors.
- Stacklife is scalable, presenting enormous collections of items in a familiar way, and enabling one-click browsing, faceting, and subject-based clustering.
A walkthrough

The Stacklife home screen shows a scrollable list of recently returned items. The horizontal length of an item indicates the physical item’s length. Its height indicates its page count. The depth of its blue indicates its “StackScore,” a calculated measure of how often it has been used in various ways by the Harvard community.

Welcome to StackLife, a new way to browse the Harvard Library collection.

This is a prototype. We’re eager to hear from you about what works, what doesn’t, and what you’d like to see. Email us at li@law.harvard.edu!
The search page defaults to listing items by their StackScore. Facets are exposed on the left. Clicking on an item takes the user to the item page.
The Stacklife item page shows information about the item, including its bibliographic data, its real-time availability at Harvard libraries, and details about its StackScore. Links are provided to the Harvard HOLLIS catalog entry for the item, and to online access via Google Books when available.

The default stack shows the work with the items around it according to their Library of Congress call numbers; the items are drawn from all of Harvard’s many libraries. Clicking on any of the items categories creates a stack showing the item in a stack with the other items in that category. Users can also create their own tags.
Above we’ve clicked on the “Evolution (Biology) periodicals” category for this particular item (Biological journal of the Linnean Society).
Above is an item about which there has been a National Public Radio story. NPR supplies LibraryCloud with a feed of items about books and Stacklife lets users hear them by clicking on an embedded player.
This item (*No Country for Old Men*) has its own page at Wikipedia, which the user can get to by clicking on a link in the right hand information box. In the left hand column, Stacklife lists the terms under which this work is categorized at Wikipedia; clicking on those categories creates a stack of the other works listed under that category at Wikipedia that are within the Harvard Library holdings.
Every author within the Harvard Library catalog gets her or his own page. It lists the author’s works within the Library’s holdings and the categories under which those works have been classified; clicking on a category shows that author’s works with all other items under that classification.
Mission statement

Stacklife was developed by the Harvard Library Innovation Lab at the Harvard Law Library. Our mission is threefold:

- We think in public.
- We build software that demonstrates how libraries can bring yet more value to scholars and researchers.
- We amplify our effect by eagerly partnering with other groups with similar passions.

Or, as our founder John Palfrey put it, “Hack libraries!”

Project history

The project developed from an initial idea about creating a faculty works database styled on the Internet Movie Database (IMDB). Part of this was to be a scrolling shelf to display faculty works. This led to our developing an Open Source widget, called Stackview, that turns JSON into a visualization of a stack of books. (We switched from the usual horizontal view of a shelf to a vertical stack when user testing proved that text on upright spines was too hard to read.)

Stacklife intersected nicely with the LibraryCloud project our Lab was also beginning to develop. LibraryCloud is an open metadata server that makes Library metadata available through APIs. Stacklife runs on top of those APIs. One of the premises of LibraryCloud is that every crumb of library metadata has potential value; Stackscore is an illustration of this. (We are also submitting LibraryCloud to SPIRL, with the suggestion that LibraryCloud and Stacklife could be considered jointly.)

LibraryCloud began as a multi-institution effort to aggregate library metadata and make it available through a common API. As a result of those early efforts, the development version of Stacklife has catalog and usage information from a handful of public and university libraries, and enables faceting on them. We very much hope to get back to this idea if and when LibraryCloud becomes a supported part of the Harvard Library infrastructure. (It is on track for this.)

In the summer of 2011, our Lab engaged in an extensive effort to develop a prototype of this multi-library version as part of the Digital Public Library of America’s “Beta Sprint” initiative. A dozen institutions partnered with us. We presented the result at the first national DPLA meeting, and received a grant to develop a version to browse DPLA book content. Because the first round of content from the DPLA contained only about 100,000 books, we mashed it up with the book content from Hathi Trust and the Internet Archive. This version (available at http://stacklife-dpla.law.harvard.edu) contains metadata only about online material, which means users can be reading a book with a single click. It also contains an interesting experiment: using a book’s subject headings to retrieve related non-book content from the DPLA through the DPLA’s API.
At the DPLA’s second national conference this past October, it announced that it now has about 1.5M books in its meta-catalog, and that the DPLA has integrated Stacklife as the default way to browse books on that site.

The DPLA version of Stacklife integrates with the site’s UI and look and feel. It shows related images within the DPLA collection.

The Harvard version is listed on the Harvard Library portal page as an official alternative to the standard HOLLIS browser.

Intended clientele

- Stacklife is an end-user tool. Although it was developed for a research library, it is useful for any library that wants to encourage serendipitous browsing that is guided by the ways its community has taken up works. The DPLA’s adoption of Stacklife is evidence of this.
- Stacklife is an Open Source project intended to be reusable and forkable by developers. The Stackview widget lowers the bar for those who want to display items on the scrollable shelves featured in Stacklife.
• Stacklife is a proof of concept of LibraryCloud. We would love to release a version that puts multiple institutions’ libraries on a single shelf. For one thing, that would enable a community to learn what is relevant to other communities, helping to break out of the long tail loop.

Principal players’ biographies

Here are brief biographies of the people in the Harvard Library Innovation Lab who contributed to this project:

• Annie Cain, developer. A one-time reference librarian who gave it all up to code, Annie Cain hacks away at pushing ideas out to the Harvard Library community and beyond. She has a B.S. in Informatics from the University of Washington and an M.L.S from Simmons College.

• Ingrid Cheung, developer. Ingrid is the newest member of the Harvard Library Innovation Lab. She is an applications developer with a particular interest in developing tools for other developers. She works on many of our back end tools and does integration work between Stacklife and LibraryCloud. She is interested in augmented reality, home brew electronics, and programming outreach. She teaches circuitry and crafts to middle school and high school students, and spends her free time in the air.

• Paul Deschner, developer. Paul has been an applications developer at the Harvard Library Innovation Lab since 2009. He has been working mostly on the Lab's LibraryCloud data platform and other data projects, developing ingestion, object representation and metadata enhancement implementations for a wide range of library-related item and usage metadata from Harvard and other institutions and web services. Prior to his arrival at the Lab, Paul worked as a web developer at Harvard and software engineer at an internationalization services startup. He has traveled widely, studying and teaching in Europe for over a decade, and is fluent in multiple languages. He has an M.A. in English from Tufts University.

• Kim Dulin, co-director. Kim also serves as Associate Director for Collection Development and Digital Initiatives at the Harvard Law Library. In addition to her experience as an academic law librarian, Kim has served as practicing attorney and an adjunct professor of law. Kim has a JD from the University of Iowa College of Law, an MS from the University of Illinois Graduate School of Library and Information Science, and a BA from the University of Iowa.

• Jeff Goldenson, designer. Jeff Goldenson works at the intersection of libraries, technology and fun. He is the designer in the Library Innovation Lab where new library projects are imagined and built. He's Co-Teacher, Harvard Graduate School of Design Seminar 09125, The Library Test Kitchen, a workshop where - with the financial support of the Harvard Library - students design and build their own library projects. Jeff earned a Masters of Science from the MIT Media Lab.
• Matthew Phillips, developer. Matt works on a number of different projects in the Lab. Recently his focus has been on the Awesome Box – an alternate returns box for awesome checkouts, and Perma.cc — an archiving tool that aims to stop link rot in academic publications and beyond. He holds a BS in Computer Science and earned a Masters in Computer Science from Virginia Tech. He loves libraries, the Internet, and bicycles.

• David Weinberger, co-director. David writes about the effect of technology on our ideas. He has been a philosophy professor, high tech marketer and entrepreneur, and freelance journalist. He is currently a senior researcher at Harvard's Berkman Center for Internet & Society and is leading Harvard Library's Interoperability Initiative. He has a Ph.D. in philosophy from the University of Toronto.

Links

• Harvard Stacklife: http://stacklife.law.harvard.edu
• DPLA-Hathi-Internet Archive mashup: http://stacklife-dpla.law.harvard.edu
• Integrated DPLA version: http://dp.la [click on “bookshelf“ at the top]
• LibraryCloud home: http://librarycloud.harvard.edu
• About the StackView widget: http://librarylab.law.harvard.edu/blog/stack-view/
• StackView technical documentation: https://github.com/harvard-lil/stackview
• Stacklife Open Source code: https://github.com/harvard-lil/stacklife

Media

Endorsements

Re: Stanford Prize for Innovation in Research Libraries (SPIRL) To Whom It May Concern:

I am writing with my strong support for Stacklife’s candidacy for SPIRL. Stacklife has been a tremendous inspiration for all of us at the Digital Public Library of America, and has pointed the way toward richer and more serendipitous interfaces for research collections. Indeed, it was the main tool that we integrated soon after our launch, in the form of the “DPLA Bookshelf.”

We knew that when we announced the addition of a large number of books to the DPLA collection that we would have to find an easy, yet powerful, way for our users to browse the collection. The Harvard Library Innovation Lab’s creative new interface and back-end system adds to our discovery portal the most familiar of library metaphors: a quickly scannable shelf full of books. But it is much more than that.

Stacklife lets the user scroll a visual representation of a bookshelf that provides all the instantaneous power the digital world provides. On our site, for instance, when a user of the DPLA site searches for books, the results are displayed as books on a bookshelf; the shelf is shown as a vertical stack so that the titles and authors are more easily readable on their spines. The width of the book represents the actual height of the physical book, and its thickness represents its page count. The spine is colored with one of ten depths of blue to “heatmap” how relevant the work is to the reader’s search.

When a reader clicks on one of the books, additional information about it is displayed to its right. The reader can launch the e-book with the click of a button. Or, he or she can explore further by clicking on one of the subjects under which the book has been categorized. This replaces the existing shelf with a shelf containing all the other books in the DPLA collection categorized under that same subject.

Further, when a reader clicks on a book, the DPLA Bookshelf displays thumbnails of images within the DPLA collection related to that book’s subject areas. Clicking on a thumbnail displays the image and additional information about it.

The ease of moving across and within the united collection, textual and non-textual, and the unexpected juxtapositions and discoveries, make Stacklife a true innovation. Commentators have constantly lauded how well Stacklife enhances our site.

The prominence and reusability of Stacklife is also extremely notable. The New York Public Library recently held a hackfest on digital books (OpenBook 2014), and the many librarians and software developers there sensibly—and excitedly—chose Stacklife as one of the foundations of their work.

In short, Stacklife exemplifies the creativity that SPIRL highlights. I hope you will give it strong consideration.

Sincerely,

Daniel Cohen  Executive Director  Digital Public Library of America

13 January 2014
I am very pleased to write in support of the nomination of Harvard University’s StackLife project. StackLife is a true innovation in library service that brings an important practice from traditional library research to the digital context – the ability to quickly browse a shelf full of books, a virtual shelf that includes books in the different formats in which they exist.

I know that the Digital Public Library of America (DPLA) has already employed StackLife as one of its first tools, the DPLA Bookshelf. StackLife has proven to be an excellent and creative interface for discovery in the DPLA and I believe it will be used by many others as a primary tool for discovery in digital collections.

The team at the Harvard Library Innovation Lab applied their creativity, knowledge and deep commitment to making digital content easily discoverable and usable to develop this tool. I urge you to recognize their work and the innovation they have created in StackLife by awarding the prize to them. I believe this important and sustainable product exemplifies the innovation that this award seeks to recognize.