Use Cases and Personas for Spatial Search

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In this paper, we describe the use cases and personas we developed for our GeoBlacklight discovery services, an open source, multi-institutional software project started at Stanford University Libraries (http://geoblacklight.github.io). It provides discovery services across a federated multi-institutional repository of geospatial resources, and is part of a larger effort to preserve and provide access to geospatial data. This effort is an open collaborative project aiming to build off of the successes of the Blacklight (http://projectblacklight.org) and the multi-institutional OpenGeoportal federated metadata sharing communities (http://opengeoportal.org).

Our aim is build an application that enables discovery with an emphasis on user experience, integrates seamlessly with other web mapping tools, and streamlines the use and organization of geospatial data. Specifically, we focus on discovery and user experience, leaving analysis to other tools, on growing a community of open source development and metadata sharing partners, enabling discovery across institutions. Traditionally, geolibraries have focused on spatial search and organization, but not as much on federation and modern search semantics like query intent processing and faceting. Emergent geoportals, for example, have suffered from usability issues, lack of federation, and integration with other applications. GeoBlacklight’s modularity as a Ruby on Rails engine lends itself to be deployed in a variety of Blacklight applications and contexts. It uses a metadata schema that enables specific geospatial discovery use cases for search, view, and curation functionality.

Use cases. We focus on discovery-oriented use cases for search, view, and curation, supported by six personas in a research library context (see Hardy & Durante (2014) for further details and diagrams). The search and view use cases include three modalities of text search, faceted refinement, and spatial search, and two actors: a casual user and a geoportal user. In general, current features in geoportal and web mapping applications are map and text views of results, clustered results, faceted search, text search, spatial search, preview layer, related items, groupings, and suggested search. Hardy & Duarte (2014) discuss how “search users either use web search engines or geoportal search directly. This is a very important design point as web search is so heavily engrained into users' workflows for discovery of resources in general.” The primary search use cases are web search, geoportal text search, geoportal faceted refinement,
and geoportal spatial search. For the view landing pages, the use cases are view dataset, view metadata, visualize layer, and download layer.

On the curation side, there are two actors: a curator and an administrator. The curation use cases cover how the geoportal application builds and manages its federated multi-institution repository of holdings. The primary use cases are to import and export holdings, curate holdings, monitor operations, and acquisitions via purchasing policies, archiving public layers, and self-deposit.

**Personas.** We divided our personas into Application End Users and Project Stakeholders and below we list their primary goals. For Application End Users, we have a Professor, PhD Candidate, and Student:

(a) Professor—experienced scholar, not a GIS user, looking for specific data:
- Quickly find historic maps for my area of study
- Use a tool that thinks like I do to find the information I need,
- Point my students to a great campus resource for data and historic maps.

(b) PhD Candidate—power user, experience professional, focused on getting the job done:
- Quickly evaluate potential data sources
- Download and save discovered layers
- Discover hard to find localized data sources

(c) Student—new to GIS and research, tech savvy, eager to learn:
- Finding GIS data to get started seems daunting
- Hard to determine which data are reliable
- All of these GIS tools seem to have been designed 10 years ago

and for Project Stakeholders, we have a Librarian, Lab Manager, and Web Engineer:

(a) Librarian—passionate about geospatial and access, wants to provide more patron services:
- Provide visual catalog to libraries' GIS data and maps
- Give patrons access to other institutions shared GIS data and metadata
- Understand how and what users are downloading/using the resources we provide

(b) GIS Instructor and Lab Manager—experienced professional, wears many hats, helping and training many:
- Easily share GIS data sources with students
- Provide instructions and demonstrate discovery of GIS data
- Have one place for students to go to obtain GIS data

(c) Librarian Web Engineer—code contributor, open source advocate:
- Install and customize an instance of GeoBlacklight for university’s users.
- Be able to contribute code to the GeoBlacklight project.
• Share metadata records with community.

These use cases and personas have guided our development to focus much more on user experience in light of modern search semantics, where spatial search is an enhancement rather than focus. Thus far GIS has made significant strides on the technical details behind spatial indexing and “GIS-styled” user interfaces and should now a focus on modern search semantics which are aided by spatial search and federation.

References