**Undergraduate Portfolio System**

Project Proposal

April 2013

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**Document To Do**

**Audiences**

* Add Alumni

**Technical Approach**

* Coding Standards

**Solution Overview**

* Proposed solution
* Add more details to in scope and convert to paragraph
* Alternative solutions
* Design approach

**Designs**

* Site map
* User flow charts
* Wireframes
* Storyboards
* Class diagram
* Database schema

**Executive Summary**

The University of Maine does not have an online portfolio system for undergraduate students. Academic work exists only at the classroom level and students lack the tools and opportunities to share their work with a larger audience. As well, student work originates from a variety of sources including multiple classes, research labs, personal projects, among others. Students also lack tools for organizing and archiving these works.

The proposed project seeks to address these issues and more by developing a system for students to organize, share, and publish their academic work. The system will also support the discovery and sharing of excellent student work by multiple audiences including faculty, alumni, and potential employers and provide evaluation tools for students to solicit feedback from others.

The system will be implemented as a website accessible to all undergraduate students, faculty, and other groups. The remainder of this document outlines the specific reasons, approach, and plan for developing the proposed project.

**Statement of Problem**

Undergraduate students at the University of Maine currently lack tools for organizing and sharing their academic work during their four years at the university with diverse audiences. While mechanisms for disseminating work exist at the Graduate and faculty levels (such as academic journals and conferences), undergraduate work typically is not seen outside the classroom. Students lack the tools to fully demonstrate their academic excellence and achievement to potential employers, graduate schools, and many others.

As well, although student academic experiences are clearly defined through concrete programs of study, the associated academic work is fragmented and disordered. The academic development of the student after four years is lost and specific projects forgotten. Faculty and departments are also disadvantaged by losing exemplary classroom and student work which could be used for future classes and exciting prospective students.

**Audiences**

This section describes the various audiences and audience needs for a portfolio system. The primary audience is undergraduate students, followed by faculty as a secondary audience. Tertiary audiences include the administration, prospective students, parents of students, potential employers, and alumni, among others.

**Undergraduate Students**

Limited discovery paths exist for students to discover work and demonstrate their own work. Students are left without a representation of their academic performance because they lack the tools to present and showcase their work to others. Finding people with similar interests is also difficult, especially in other majors and colleges, however these works can serve as inspiration and motivation for academic excellence and potential collaboration. Research into past work, for example grouped by specific class work, is impossible. Finally, without dissemination avenues, students often find it difficult to demonstrate their work to a wide & diverse audience.

Students currently have limited to no feedback on their academic work except classroom-based feedback. As a consequence, students do not have the tools for evaluating quality work or improving their own work behind limited inspection.

Existing academic work is neither in one place nor organized. As a consequence, student work is fragmented according to individual classroom work and ill representative of the entire academic experience. Students do not have a way of assessing progress over their 4 years because older work is forgotten or lost.

With the existing infrastructure, it is difficult for students to share and collaborate with peers & faculty. Sharing project work requires students to maintain multiple versions of work through email, implement custom team-based software solutions, or implement some other custom solution. As well, discovering potential collaborators (such as existing peer/faculty research opportunities or interested project partners) is often hard and limited to spontaneously discovered opportunities or opportunities & peers within the major. Connecting with peers for project work because of varying schedules and a multitude of device platforms also further compounds the issue.

**Faculty**

Existing student feedback on work does not extend beyond the classroom or integrate well with external systems. While some feedback tools currently exist, expanding the scope of how work is viewed and the available feedback options will enhance learning and understanding. for example, grading and feedback tends to be limited to instructor responses and not include as much peer feedback. As well, viewing student work outside the classroom provides faculty with an opportunity to recognize and provide different feedback than rubric-based assessment.

Currently communicating student work is mainly accomplished through hearsay within a department. Often times, faculty need or want to demonstrate to their department, prospective students, a new class of students, or other sources excellence within their major or class. As well, sharing this work is difficult as their are no tools or mechanisms in place for maintaining and providing a consistent view of student work.

Currently, faculty networking and collaboration with students is difficult. Finding diverse students to work in a lab, especially students outside the major, is hard, especially without clear work to view. Similarly, finding students for project collaboration outside of students met through classes is hard. Helping connect students to resources (such as potential employers) can also be difficult as tools for recommending and supporting student work do not exist.

It is impossible for faculty to find exceptional student work without archiving class work on their own or networking with other class archivists. However, discovery of this work is difficult and archival and organization non-existent. Organizing, collecting, and showcasing excellent and representative work would strengthen a college's/department's/class's image to various audiences as well as provide a roadmap of a department's transition through the years. As well, faculty advisors would have a tool to track and view the development of a student throughout their time at the university.

**Other Audiences**

**Administration / Marketing**

**Administration**

The primary need concerning the administration audience is to find somebody with special skills (be able to take some beautiful photographs, be able to design an advert for an incoming event...).

Presently people from the administration are forced to send a general email to their different contacts to find the right person. Our system must therefore overcome this problem by proposing a efficient research tool on specific skills. The results of this research should be presented in a way to be able to compare the works of various "candidates". Finally a system of "status" to say if this person is available to do some volunteering work or if she wants to be paid for that has to be implemented. At an implementation level this function could be materialized by a filter among the search criteria. Obviously it should be possible to contact directly this selected student if necessary.

**Marketing**

The administration always wants UMO to look good. A system of show off repository should be implemented to be able to pick images or stories of good student. These media could potentiallyî be used for marketing events and promotion. Finally the administration could see which departments are actually doing good work.

**Prospective Students**

As a tertiary audience, perspective students also have many needs that the Portfolio System could facilitate. Presently, perspective students have no window into the work being produced by current students of any level. Access to the Portfolio System would allow these perspective students to see exactly what gets produced in many courses offered within their program of study. This would give them the ability to more accurately assess their interest in the program and understand what paths are available to them. There also is no current system in place which allows for the viewing of work done by faculty. Opening up this channel would allow for prospective students to not only view this work, but also provide a convenient location to contact a faculty member that specializes in their unique interests. This combination of both student and faculty work would allow prospective students to see the major's/department's community as a whole and start to visualize themselves within it. Lastly, being able to see the growth of a current student through the entirety of a program would give a prospective student insight into potential careers upon graduation. Knowledge of the future is one of the primary decisions behind prospective students ultimately choosing a program to follow, thus the Portfolio System should be able to accommodate this need.

**Parents of Students**

Parents of current and prospective students comprise a peripheral yet important audience for the portfolio system. Currently their access to student work is largely limited to what their child might choose to share with them or what they can glean from various 'featured student' columns throughout the university and department websites.

while away at school. They will have access to other student's work as well which will allow them to easily gauge how their student is performing compared with others in their department or even university-wide.

Parents will also be able to track their child's progress over time, and have a better sense of their ongoing development.

The portfolio system provides parents an easy way to share their child's work with others for several reasons, from simply showing off as a proud parent to showing work to potential employers or financial assistance sources (i.e. scholarship funds, etc.)

Parents of prospective students would benefit greatly from the portfolio system by having access to a university-wide repository of student work that they could browse. With this tool they could investigate different majors and departments that would help them and their child make informed decisions about where and what they would like to study, and gain a clear idea of the quality of the education and department that their child might enter into.

**Potential Employers**

Any excellent academic work that might help employers find students (potential employees) is difficult to access at best. This means that it is hard for employers to compare students based on their actual work. The employer can has limited ability to see the level of student motivation and a complete list of their activities. It is also difficult for employers to get a sense of the university community, the level of academic commitment of students on a particular campus and the quality of academic work that is produced from the undergraduate community. This leads to the difficulty of comparing students from university to university, and how their work compares to students at different universities.

While the job market affects what courses and information are important in a given academic path, the process is often delayed. Due to this many potential employees lack the skills that their field is using or is transitioning too. The lack of direct involvement of employers in informing academic paths means that students are not as focused on learning important information in their field as they could be.

It is difficult for employers to views student skills that might apply in the job market. Without seeing these specific skills it can be hard for match students to the jobs that would fit them the best.

**Project Objectives**

So as to address the primary needs of all of the audiences, this project will focus on accomplishing the following objectives:

**•** Provide access to student academic work

**•** Network students with other audiences

**•** Facilitate communities around academic work

Providing access to student academic work entails facilitating the discovery of excellent student work for all audiences. In addition, students need to be able to organize and archive their own work, allowing them to track their progress as well as show exemplary work to the general public. Faculty also need tools to track students and showcase excellent student work such as for a specific class or .

Networking students with other audiences means providing social tools for connecting users to students. Networking may occur in any of a multitude of directions such as students using their portfolio in their resumes for potential jobs, potential employers finding excellent students, or peers finding potential collaborators, etc.

The objective of facilitating communities around academic work is to leverage online tools for strengthening the academic experience. Because student work is on-going, students need tools for sharing work with peers and soliciting specific feedback on works in progress. As well, contributing and exploring works within specific communities enhances learning and academic excellence.

**Solution Overview**

**Proposed Solution**

**In Scope**

- Undergraduate student portfolio system

- System integration with other tools like classroom project tools

**Out of Scope**

The proposed project will not be providing portfolio functionality for graduate, faculty, or alumni work. As well, sophisticated collaboration tools such as managing project files like Dropbox, planning tools, and other group-based collaboration that is outside of basic sharing for feedback and project viewing will not be included.

**Alternative Solutions**

**Technical Approach**

The technical decisions were made primarily out of convenience to leverage existing skills and implementations in other projects. Distinct libraries were chosen instead of customizing a content management systems to minimize extraneous functionality and ease adoption by new developers. As well, additional libraries can be added to the system with relative ease.

**Server Side**

The backend will be developed using a LAMP setup <http://en.wikipedia.org/wiki/LAMP_(software_bundle)>. Page requests will be managed by the library Slim <http://www.slimframework.com/> and database access will use the active records implementation provided by Paris <https://github.com/j4mie/paris>. Twig will be used for rendering html templates <http://twig.sensiolabs.org/>.

**Client Side**

Twitter bootstrap will be used to ease html structures and JQuery will be used for DOM manipulation where necessary. Other JavaScript frameworks will be explored as needed such as underscore.js and JQueryUI.

**Source Control Management**

To manage code between developers git will be used to mange the application code. For tutorials see <http://sixrevisions.com/resources/git-tutorials-beginners/>.

**Coding Standards**

**Design Approach**

**Definitions**

**Users**

Users are registered and non-registered individuals who interact with the portfolio system. User types include anonymous, member, undergraduate student, and faculty. Members have all of the same features as an anonymous user and students and faculty have all of the same features as a member. For detailed features associated with users, see the Features > User Features section.

**Anonymous**

Anonymous users are users who are not logged into the system, i.e. the general public viewing the website. Publically accessible work and portfolios are available for browsing.

**Member**

Members are generic, logged in users of the portfolio system. Any person from any audience can become a registered member, such as an alumni, graduate student, potential employer, and parent.

**Student**

A student user is a specialized type of registered user. A student user is a registered member who is also an undergraduate student at the University of Maine. Any other student type (such as a graduate student) cannot become a student user. Students are the primary user group. The primary function of students is to manage their portfolio and works.

**Faculty**

A faculty user is another specialized type of registered user. A faculty user refers to a professor or instructor at the University of Maine.

**Groups of Users**

A Group is a set of people who share a common attribute or interest. (See below for different examples of groups).

Intrinsically a group has two sections: on the one hand the “Work in progress” section which is compulsory and by default private. On the other hand, the “public gallery” section which is optional and as it’s name indicate with a public visibility.

**Work in progress section:**

This section is a dedicated space for members who want to received feedbacks on their projects.

It’s a private section where only the group’s members can interact.

**Public gallery:**

This gallery is designed to show some finished works. It’s public and accessible by anybody.

**Synthesis diagram**:



**Concrete example of group:**

In the New media group we have a dedicated section for the work in progress. Only members of the New media group can access this section anonymous users can only see the public gallery with fully functional works.

**External functioning of a group:**

* you can create a group (you will become the admin)
* you can follow a group (ie you will received notification as soon as a public work is published)
* you can invite a member
* you can delete a group (as the admin)
* you can edit the settings of the group

**Internal functioning of a group**

* you can take part in a group
* kick a member
* publish work in the WIP section
* add multiple revisions of you works in the WIP section
* publish work in the public gallery (the last revision is the last accessible)
* editing your work
* push some work from the WIP section to the public gallery
* ask for feedbacks
* give feedbacks



By default each department have their group?

The notion of open group if accept some new admission or close group (as for example a class group)

Collaborative-work groups (work done with other students, such as research work) is now an attribute.

Do we found in the gallery systematically work from member of this group?

**Types of Groups**

* Department groups (NMD, CMJ, ENG)
* College groups (college of liberal arts and sciences, etc)
* Class groups (NMD 102, CMJ 236)
* Interest groups (photography, programming, robotics, etc)
* Club groups (photo club, etc)
* Personal groups (friend groups, feedback groups, etc)
* Job groups (ASAP, etc)
* Major groups (Molecular bio major, journalism major, engineering major)
* Collaborative-work groups (work done with other students, such as research work)
* Clubs

**Student Work**

A student work is any work created within a specific context. At the most basic level, a single student work is a collection of media (links, audio, images, video, text, interactive apps, and others) and contextual information describing the work. Examples of work include class work, personal projects, photography, employment projects, research, extracurricular work, and so forth.

**Media**

Media are the containers for pieces of a student work. Users create media by providing the content for a specific media type, for example by uploading a file or providing a link to other media on the web (such as youtube, vimeo, Flickr, etc.). A single *media item* is a container for a specific type of content. may be displayed by itself or multiple medias of the same type may be grouped into a *media set*.

**Media Item**

A *media item* is a container for a specific type of content. Usually a *media item* is tied to a single file, a link, or some other data provided by the user. *Media items* also include meta information about the content type, which may include specific technical information like encoding format or more general information such as title and location. *Media items* are also visual containers for content and display properties and templates are specified for each media item. Example *media items* include:

* Video
* Image
* Text
* Link
* Audio
* Interactive Widget
* Download file link

**Media Set**

A *media set* is a collection of *media items* of the same type. Example media sets include:

* Image Gallery – a collection of images
* Playlist – A collection of audio files
* Video Gallery – A collection of videos

**Contextual Information**

Because student works come from a variety of sources, there is a lot of rich information than can be extracted about the time, location, event if applicable, description, type of work, associated groups, collaborators, completion status, and self evaluation. Contextual information that will be collected includes:

* Completion Status (Work in progress, complete)
* Type of work
  + Class Work
    - Capstone/Thesis Details
      * Title, Abstract, Defense Date, is Honors
    - Dept. Name & number
    - Instructor
  + Personal Project
    - Job
      * Client, employer, Job description
    - Extracurricular
      * Whoa
* Date started / finished (semester or date range)
* Description of work (goals, assignment, background information, etc.)
* Other collaborators
* Category(s) work belongs to
* Self-assessment

**Published Work**

Number of views

Ratings

Comments

**Feedback**

Students can solicit other users to provide feedback on a specific work. Students create custom questions and allow other users to view and evaluate their work using the questions. Summary of responses are available.

**User Profile**

Profiles provide contextual information about a single individual by describing who she is, academic interests, and other defining information. The system can use this information to strengthen search results, suggest similar related people and work, and help contextualize users. Basic profile information for each registered user type are provided below. Note that students and faculty, as specialized member users, will have most of the same information as members.

**Member**

* Name
* Academic interests
* Description
* Picture
* Type (member only): Alumni, Parent, employer, prospective student, University employee

**Student**

* Year in school
* Expected graduation
* Majors / Minors
* Availability status (Looking for opportunities)
* working at \_\_\_\_\_
* Plans after school

**Faculty**

* Associated Departments
  + Interests/Research
  + Classes Taught

**Collections of Student Work**

A collection of student work is a set of work that shares some common similarity. The similarity may be intrinsic to the works, user specified, or group based. More precisely, a collection is a relationship between users, groups, and work. Works are grouped into collections, ultimately, to facilitate browsing, sharing, and feedback.

Possible Collections

* **Personal collection (all of the users work)**
* **Dept. Collections (all NMD work, all CMJ work, etc)**
* **Class collections (all NMD 102 work, all CMJ 236 work etc)**
* **Major collections( all New Media work, all Journalism work, all Marine Bio work, etc)**
* **Media collections (all photos, all videos, all coding)**
* **Favorited collection (all the work the user has favorited)**
* **Top collection (most favorited works)**
* **Extracurricular collection (any work done outside of class, such as for a job)**
* **Public collection(all published works)**
* **Focused collections(all work done for a particular interest, as specified by the context of the work, potentially based on tags)**
* **Most-recent Collection(most recently uploaded work)**
* **Suggested collection (user specific collection based on the users interested and what works they favorite)**

**Types**

**User Collections**

* personally gathered public works
  + A collection of work that a user creates to showcase
* All works by a single student
  + All of the work organized and archived by a student.
* Published works by a student
  + Work from a single student viewable by the general public.
* Favorited collection
  + All the work the user has favorited

**Group Collections**

* Works that belong to members of a group (publicly visible)
  + A collection of work publically available completed by members of a group. For example, department work, specific class work, major work, etc.
* Works that are shared with a specific group (privately)
  + A collection of work visible to users in a specific group. Users may also solicit feedback from the group.

**General Work Collections**

* Works grouped by contextual information
  + A collection of work such as extracurricular work or within a specific interests or category.
* Recent, hot, & top work
  + Collections of work that systematically change based on viewership and ratings.
* Media collection
  + All photos, all videos, etc…

Collection name

* description
* how does it function? (what does it do?)
* context of use (diagram)
* Who uses it? How does it connect to other users? Groups?
* What does it not do?

**Features**

**User Features**

This section describes what features are available to which audiences. Note that students, faculty, and members all have access to anonymous features and students and faculty have access to member features.

**Anonymous User Features**

* Browse student work in collections
* View student profiles
* Browse groups? Collections? -> What specifically and how?
* Search for students, work, or group
* Register account
* Flag content as inappropriate
* Like with Facebook, G+

**Member Features**

* Join/Create groups
* Create profile
* View private work shared with group
* Comment and rate work
* Suggest students/work to other users
* Provide feedback on work
* System suggests students with similar/complementary interests
* Manage account
* Follow Student, Group, Gallery (receive notifications)
* Send direct message to student (potential collaboration, lab/job opportunities, other)

**Student Features**

* Create student profile
* Organize and archive work
* Share work with public
* Solicit specific Feedback on work-in-progress from a group
* Share work and work-in-progress with peers
* Delete account & data

**Faculty Features**

* Create Faculty profile
* Organize past student work from class
* Create a group

**All Features**

This section organizes system features into common feature groups and further explains what the feature is.

**Account**

* **Register new account**

Creates a new member, student, or faculty member

* **Delete account and data**

Removes all data and account information

* **Manage notification settings**

Set notification methods (email, text) and notification types to receive

**Profile**

Profiles are available to any logged in user, however, different user types have different profile information. See Definitions > User Profiles for specific differences.

* **Update profile information**

Change profile information such as description, interests, etc.

* **View profile**

View any user’s profile information

**Notifications**

* **List of recent news**
* **Follow Student, Group, Gallery**
* **Types**
  + Following student
    - Notified when new works created
    - Notified when Work in progress changes to completed
  + Following Group
    - Notified when new work added
    - Notified when new feedback requested
    - Notified with top work weekly via email
  + Follow Collection
    - Notified when new work added
    - Notified with top work weekly via email
  + Direct Messages
  + Feedback
    - Feedback responses

**Student Work**

* **Create new work**
* **Organize work**
* **Publish**
* **Share work with limited audience**
* **Solicit Feedback**
* **Faculty: Organize past student work from class**

**Browsing Work**

* **Search**

Search using basic or advanced filters for students, work, collections?, or groups

* **Featured space**
* **View work in my groups**
* **Suggested students with similar/complementary interests**
* **Viewing Student Work**
  + Like with facebook/G+
  + Flag content as inappropriate
  + Comment and rate work
  + Suggest students/work to other users
  + Provide feedback on work

**Networking & Social**

* **Send message to student**
* **Join/Create Group**

**Designs**

**Site Map**

**User Flow Charts**

**Wireframes**

**Storyboards**

**Class Diagram**

**Database Schema**