Harvard University Extension School

Master of Liberal Arts in Extension Studies, Digital Media Design field

To complete the Master of Liberal Arts in Extension Studies, Digital Media Design field, all students must complete a capstone project. This is the equivalent of a master's thesis project. Students taking the capstone course in Fall 2015 have completed this substantial project, based on an initial proposal. This capstone poster session is an opportunity for students to share their work with the Harvard and local business community, to get feedback, and to proudly share what they have learned.

Below is a list of our capstone students, including their project titles, their contact information, and a description of their project.

Twitter hashtag for this event is #HarvardExtDGMD

Merchant Mariner Secure Application System (MMSEAS): Bringing the United States Coast Guard into the 21st Century

Larry L. Adams II

professorlarryadams@gmail.com | larry.l.adams@uscg.mil

www.uscg.mil/nmc/mmseas

As the Webmaster and IT Developer for the United States Coast Guard's National Maritime Center, my thesis project solves real world issues through technology solutions regarding collecting, processing, evaluating, and storing paper applications that cost the tax payers more than 40 million dollars a year.

This pilot program provides real world solutions by creating a paperless system through the Drupal Content Management System (DCMS), allowing the Merchant Mariner Commercial Shipping Industry to apply for our Merchant Mariner Credentialing program online through a DOD/DISA government Cloud environment that meets federal mandates and NIST Standards. By eliminating or significantly reducing paper application, it is estimated that the United States Coast Guard could save over 890 million dollars each year.

The National Maritime Center is the governing authority of all commercial licenses in all United States waterway. It includes more than 218 thousand active Mariners from more than 220 countries and over 1.2 million visitors on our website. Currently you have to apply through a paper application which is process by 19 Regional Exam Centers (REC) throughout the United States and Puerto Rico. MMSEAS will revolutionize the United States Coast Guard Document Management System (DMS) by automating collections and processing to reduce man-hours and processing time.

annotatAR: lo-fi augmented reality for the mobile web

Rachel Boyce
rfboyce@gmail.com
twitter: @roastbeest
arebe.us

Digital media has changed the way that events are experienced; happenings that once were confined to a single space in the concrete physical world now have simultaneous connected virtual correlates on websites and social media platforms. AnnotatAR communicates the multi-sited nature of an event with synchronized activity on a Twitter hashtag. Real-world events are mediated with tweets in a mobile website augmented reality experience:
- Device camera stream is displayed as the "reality" layer using HTML5 video and WebRTC
- Twitter stream API provides an "augmented" layer of tweets
- Geolocation determines which hashtag is displayed
- Built with Meteor.js

Gamify It: increasing student motivation and self-reliance through the application of game mechanics to learning, assessment, and classroom behavior

Caitlin Cahill

info@caitlincahill.com

projects.caitlincahill.com/gamify-it

Gamification — the application of game mechanics and design methods to engage and motivate people in non-game contexts — increases motivation when applied effectively; however, there is currently no comprehensive gamification

platform that easily enables teachers to gamify their classroom and most teachers are not familiar with the nuances of effective gamification.

My application provides teachers with a suite of tools designed to gamify their existing curriculum both effectively and easily with the following game mechanics:

- **Quests** : visually maps content and activities into multi-path game boards, enabling teachers to give student autonomy and choice in their learning, increasing the intrinsic motivation necessary for higher-order thinking.
- **Badges**: recognizes a student's mastery of a quest or other accomplishment, while encouraging mastery-based learning and growth mindset over traditional grading scales.
- **Leaderboards & Behavior Tracking:** provides extrinsic motivation to students, while enabling teachers to reward students' positive behaviors or hold them accountable for undesirable behaviors, without affecting academic grades. The ability to reset leaderboards encourages constant effort from students.

The Legacy of Sandman

Edward Chik

edwardchik@fas.harvard.edu

The Legacy of Sandman is a personal essay video that discusses the Sandman graphic novel series and its impact on fictional narrative as well as its audience. I selected The Sandman as the focus of my project because it had enormous creative ambition, a mix of relatable and fantastical characters as well as a philosophical sophistication that challenges the relationship between humanity and spirituality. Through a series of conversations with comic enthusiasts, artists, writers and cultural experts, I explore what the series meant to each of them and how it influences the way they experience the world around them.

STEAM Cooker - A creative learning environment for science, technology, engineering, art, and mathematics

Ed Hebert and Mithila Fox

ehebert@fas.harvard.edu | ed@theblueocean.com | mithila.fox@gmail.com

steamcooker.org

STEAM Cooker is a learning project built to demonstrate the creative application of science, technology, engineering, and mathematics (STEM) topics to grade-school students. The lesson plans mix STEM with applications in art and design, making the lessons accessible to both 'left-brain' and 'right-brain' learners.

Designed to appeal to students as young as the third grade, the lessons in STEAM Cooker mix interactive video with JavaScript animations to gamify and greatly simplify otherwise intimidating topics such as fractal geometry and neural networks. Each lesson features significant interactive features to connect with a student's sense of curiosity and wonder. Built with P5.js, Popcorn.js, and Seriously.js

GardenPlantPlanner.com

Peg Hedstrom

peg_hedstrom@harvard.edu | 978.369.1562

GardenPlantPlanner.com is a curated website showcasing garden images annotated with plant names. Photographs may be browsed by category, such as plant types, location and season, and users can view details about the plants identified within each photograph. Built using the responsive WordPress open source content management system and incorporating annotation software linked to standardized data, the site gives gardeners a new tool to simplify the creative process by gathering inspiration, generating plant lists, and researching cultural requirements, all together in one place.

One Stop Publish: Streamlined Order Management System for Newspapers

Dan Ivan
ivan@fas.harvard.edu
https://OneStopPublish.com

Newspapers are facing new challenges in the digital age. There are fewer newspapers, serving a larger number of smaller customers. Newspapers are becoming more effective at handling multiple orders, but the ordering system has not changed. There are still too many manual steps required until an order gets done.

This project introduces a streamlined order management system that reduces the number of steps. There is a one-time registration, including a notification method (email, text) and a "service zone" (one or multiple states). Once the account is validated, customers place orders (or requests for proposals, RFP) in selected zones. Printers or Publishers approved for that zone are notified, via email or text. Printers or Publishers then submit quotes for open orders. Customers receive these quotes, select the best ones and pay with PayPal. Finally, Printers or Publishers are notified when their quote was paid, so the job gets done. Data flow is monitored and adjusted as needed by a back-end administrator. One Stop Publish charges a small transaction fee for completed orders.

The website was designed to work on desktops and mobile devices. Data security is a big concern these days, so the site has an SSL certificate. All payments are securely executed through PayPal, and there is no credit card information stored on the site.

Beyond the conclusion of this semester, the site will function and be improved based on the customers' feedback.

Pulp:a Platform for Collaborative Interactive Storytelling

Michael Keating

mike@mkeat.net
pulp.mkeat.net

One of the greatest barriers to writing is a blank page. Inspired by Choose Your Own Adventure books, Pulp's goal is to make writing interactive fiction as easy, rewarding and fast as possible. Writers will create branching, choice-based adventures by building off each other's ideas. The app works in real time, so you can see others working on the same storylines you are. Besides being inspired by other users, writers on Pulp can be inspired by the app itself, via generated prompts or suggestions. By making reading and writing the same process, Pulp and its users will hopefully create a growing and self-sustaining body of fiction that can both inspire further writing, and just be enjoyed by readers.

CareerTrax, the Job Hunt Assistant

Nancy Michell

Nancyamichell@yahoo.com

Having had a long working career thus far, I have had the opportunity to experience the work required for an intense job search. Through two recessions, I have had two periods of unemployment during which I learned a few things about the sort of information a serious job seeker should maintain. In addition, I also realized the value of maintaining historical information.

From those experiences CareerTrax was born. Next time I, or one of my users, is looking in earnest for a new job, we will be able to keep track of jobs applied for, resumes used, company recruiting Web sites and our user credentials for them, along with expenses incurred during the search, and provide application records to the unemployment office if requested and expense records to the IRS.

CareerTrax allows users to track and retrieve all this data and more, for a more organized and productive job search.

WeatherDrive

John Nannas

jwnannas@gmail.com

weatherdrive.org

According to the U.S. Department of Transportation, from 2002 to 2012, an average of over one million weather related accidents occurred annually. Despite this, weather integration into map applications remains limited. A resource that seamlessly integrates weather information and travel plans could help better prepare drivers to face or avoid adverse conditions. WeatherDrive seeks to meet this need, empowering users by offering:
- detailed weather and directions served in a streamlined interface with visual weather cues
- custom search options - multiple routes, forecast frequency, and trip date/time
- real time weather radar and traffic
- broad device support - from mobile to desktop across browsers
- printable/email-able results - plan and take your results anywhere

WeatherDrive is a dynamic website with a core built using Google Maps JavaScript API, the Darky Sky Forecast API, PHP, JavaScript, jQuery, HTML 5, and CSS.

Out with the Old, In with the New (Drupal Style)

Shavon Rowan

shavon.rowan08@gmail.com

time2upgrade.biz

Every company looks for growth, and with growth comes change. I converted a client's current HTML5 and CSS3 website into a Drupal content management system (CMS) website.

New features were added to include a slideshow showcasing the benefits of using electronic documents, a secure login system for clients to see their projects, and a forum for sharing good security practices with potential clients. The

current HTML5 and CSS3 website required my client to spend time updating secure forms manually, as well as updating content page by page. By converting this website to Drupal, this eliminated 208 man-hours per year on website maintenance, allowing my client to newly expand his service to international customers.

A Business Intelligence Web Portal for Ohio's Police Records Management System using HTML, PHP, SQL, Google Maps, and D3.js

Harry Rubenkoenig

rubenkoenig@fas.harvard.edu

This project built a business intelligence web portal to help police departments display and use data from crime reports, traffic citations, and crash reports, that have been entered into a state provided records management system. This portal allows police personnel to provide useful reports, graphs, crime mapping, and forms that are currently unavailable in the state-provided records management software such as the following:
- Crime and crash information are easily be mapped to show hot spot location by both time and space.
- Summary reports can be created to keep officers informed and can easily be shared with residents, news outlets, and other stakeholders.
- Dispatched calls for service can be displayed and updated in real time for officers to view on any terminal within the department's virtual network.
- Officers can quickly complete required paperwork by populating forms necessary for completing search warrants, slating suspects into jail, and general record keeping.

This web portal will help departments present their data in meaningful ways and help departments become more efficient.

Mess Less

Nina Tobio

nina.tobio@gmail.com

People's lives are busier than ever, and if someone is not a naturally neat person, it can be hard to prioritize housekeeping. *Mess Less* is a web-based application that helps messy people get motivated to clean and to keep track of their housekeeping.

Mess Less helps the user make use of the spare minutes in the day to painlessly make cleaning and organizing part of daily life. Instead of overwhelming the user with lists of chores, suggestions for cleaning products to buy, or detailed de-cluttering tips, *Mess Less* encourages the user to see how much he or she can clean in a certain area in a five minute burst. The five-minute bursts motivate the user to "beat the clock" and get as much done as possible in a short amount of time.

Mess Less also encourages users to break down larger cleaning projects into smaller, more manageable pieces. Additionally, the five-minute sessions help the user bust through the psychological road block of starting an unpleasant task, because the user only has to clean for a mere five minutes.

GoSMFA: A Mobile-optimized Virtual Tour and Recruiting Website for the School of the Museum of Fine Arts, Boston (SMFA)

Patrick Walsh

pwalsh@fas.harvard.edu | pwalsh@smfa.edu

www.patrick-walsh.com

GoSMFA is a mobile-optimized website that gives prospective students the opportunity to digitally tour SMFA's campus and facilities, create a personal SMFA artist statement, and schedule time to visit and/or speak with SMFA Admissions representatives.

The purpose of *GoSMFA*:
- Create an inviting introductory SMFA experience
- Help prospective students envision themselves as part of SMFA's unique artistic community
- Give prospective students the opportunity to draft their own artistic statements and share via various social media platforms
- Introduce prospective students into the SMFA Admissions recruiting funnel

GoSMFA is a dynamic website utilizing YouTube Javascript API, Google Maps JavaScript API, YouVisit Tour Builder, ISSUU Digital Publishing Platform, Trumba Online Calendar & Event Registration, JavaScript, jQuery, HTML 5, and CSS.

Storm Water Pollution Prevention Plan App (SWP3 App)

Brittany Winford

brittanywinford@g.harvard.edu | brittany@brittanywinford.com

More and more, businesses and organizations are trying to go as paperless as possible. This is a difficult task when years of policy previously required keeping thick binders of records. This project introduces the SWP3 App, which marks the beginning of converting industrial storm water compliance record keeping from paper to digital form. The web application currently consists of:
- Daily Rain Gauge Log - Daily entries from either a local rain gauge nearby or an on-site rain gauge
- Quarterly and Annual Facility Inspections - Complete quarterly and annual facility inspections using the application on a mobile device in the field. This solves the problem of using paper and pen inspection forms that have limited space and are time-consuming to complete and transfer to the computer after the inspection is complete.
- Quarterly Visual Monitoring - Samples of storm water runoff must be taken from various locations every quarter. This allows for digital organization and photo records to be kept and easily printed, emailed, or simply kept for later referral.
- Each type of record may be viewed and modified digitally, and PDFs may be downloaded for easy printing or emailing when necessary.

This web application can be used from a computer or from a mobile device such as a tablet or smartphone with a wifi or data signal. Because it is a web application, it is not iOS or Android specific and will function on any operating system. Beyond the conclusion of this semester, additional records and forms will be added to the application in hopes that the entire Storm Water Pollution Prevention Plan may eventually be kept and accessed exclusively in digital format instead of keeping track of binders and papers for multiple years.

Open Eggheads: A personal web platform for academic professionals that is easy to use, portable, and extensible

Michael Wojcik

michael@michaelwojcik.org

The goal of this project is to create a flexible, extensible, personal web platform for academic professionals. Specifically, this platform's target user group is those who are completing or have completed their graduate studies and are entering the academic job market, and who consequently require a professional web presence with which to market themselves effectively. This project focuses on creating a balanced amalgam of both a WYSIWYG website builder and a full-fledged Content Management System (CMS), with the purpose of helping students create web presences that are both easily managed as well as fully extensible based on their future needs. The resulting product primarily consists of an open-source, customized distribution of the Drupal CMS tailored to individual usage by academic professionals, especially graduate students with an eye towards the academic job market. This product seeks to deliver on the following promise to users: "Build your own professional, academic website in 60 minutes or less." The resulting websites include easily accessible information on a student's research interests/projects, CV, publications, and any other related multimedia, including a student headshot.