ICTD Capstone Spring 2019

Lecture 30:   CSE 490c

Topics

- Course retrospective

- Capstone design course
  - CSE 482D ICTD Capstone,   Spring 2019
  - Prereq: CSE 332; CSE 351 (or permission of advisors/instructor)
  - Meets Diversity (DIV) General Education Requirement

Announcements

- Programming Assignment 4 Due December 11
- You have received the teaching evaluation link. Complete evaluations by December 9

A high response rate is very important for meaningful results. We will send reminder emails to non-responders during the evaluation period. In addition, studies show that instructor involvement can increase response rates as much as 15-20%.

CSE Capstone courses

- **Capstone Goals**
  - Projects must be large enough to require teams of several students to work on over one quarter.
  - Students must apply concepts from more than one sub-area of CSE (at the 300-level and above).
  - The work must involve a substantial design effort.
  - Students must present their work using formal oral presentations and written reports.
  - Efforts must culminate in an interesting, working artifact.

What I expect in a capstone

- Group projects
  - About four people
  - Different roles
- Design and Implementation
- Multiple check points and expert review
- Working, useful software
- Reasonable software process
- Presentation of results

The capstone challenge

- Too much stuff to fit into nine weeks in the spring
- Focus on Design, Development & Implementation
- Choose at start of course from a set of project ideas

Potential Capstone Projects

eKichabi for Android Phones

- eKichabi is a USSD based yellow pages directory deployed in Tanzania

- Develop a smart phone version of eKichabi which provides an upgrade path with additional services

Voice recording of transactional data

- Traditional businesses have difficulty recording transactions and separating household from business finances

- Can Alexa be used to track financial transactions – e.g., allowing the proprietor to record transactions by voice

ROSCA and UW Pesa

- Develop a smart phone implementation of traditional savings products and integrate with UW Pesa

Community Health Worker Payment Gateway

- Develop a payment gateway to provide different options for paying health workers

- This can build on formative work done with Medic Mobile

Signal processing for voice forums

- Develop a voice bases social network for women
  - Can signal processing be used to distinguish men from women?
  - Idea might be controversial – but this is to address the "men behaving badly" problem that has been documented on voice networks
- Anonymize voices by signal processing
  - Reporting on sensitive topics

SMS Fraud Filter

- Develop a filter for identifying potentially fraudulent SMS messages

- Different approaches are possible
  - Machine learning
  - Templates to allow quick coding for new classes of frauds

Low-literate attendance application

- Develop a smart phone application for managing / tracking attendance of video screenings
- Target low literate users

Smart phone support for Cold Chain technicians

- WHO/UNICEF/BMGF Interest in helping technicians identify problems with vaccine refrigerators

- Develop a system that provides support beyond data collection

Classification of mobile money complaints from Twitter

- Customer care help lines are a rich source of data about challenges to mobile money

- Develop a semi-automatic system for classifying complaint tweets

ODK 2.0 – DHIS 2 Bridge

- Develop an ODK 2.0 application that can integrate into national data reporting on DHIS2

ODK 2.0 Application for Disaster Relief and Migration

- Application in collaboration with International Red Cross for managing aid distribution

Chatbot for financial inclusion

- Integrated remote help for mobile money use
- Potentially could be built on top of UW-Pesa

Literacy training application

- Voice application for language training for low literate populations
    - Respeak users have reported using the application for language practice
    - Targeted language practice based on similar ideas

Machine learning predictions to improve respeak accuracy

- Respeak is a voice transcription crowdsourcing application based on aligning multiple transcripts to improve accuracy

- Is it possible to integrate machine learning predictions to improve overall accuracy and workflow

Android phone as a family computer

- Develop user profiles to allow a single phone to be managed across the family

- Target low income users

Free Basics applications

- Low bandwidth applications for digital financial services

- Internet.org

Front end for YouTube for job skills

- Non-literate artisans are starting to use YouTube for learning new techniques

- Develop a front end for YouTube to support this

- Non-literate UI

- Pull videos from local cache for video sharing

Mapping support for unmapped areas

- Local extensions and support for generating maps from images

- Support for directions on custom mpas