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