Title: Collecting, Curating, and Publishing Accessible Mobile and Sensor-Generated Research Data

Instructor(s):

- Rosemary Rocchio, Director, Mobile and Web Strategy, Education & Research, Office of Information Technology (OIT), University of California Los Angeles; https://oit.ucla.edu/people/profiles/rose-rocchio.
- Davida Johnson, Managing Director, Community Partnerships; https://oit.ucla.edu/people/profiles/davida-johnson;
- Kent Wada, Chief Privacy Officer, UCLA
- Professor Sandrah Proctor Eckel, PhD, USC
- Travis Lee, Disabilities and Computing Coordinator; https://oit.ucla.edu/people/profiles/travis-lee .
- Professor Jose-Luis Ambite, ISI, USC
- Professor Alex Bui, MII, UCLA
- Nate Jacobs, PhD, recently of UCLA

DAY 1: WED - August 7th, 2019 - CourseDay 1 (Mobile Sensor Data)

1.1. ***1pm - 1:10pm*** - Introductions and Course Overview

Section facilitated by - Rose Rocchio, UCLA

1.2 ***1:10 pm - 1:30pm*** Data as the New Currency, monetization of data in Research institutes. Section Instructor: Davida Johnson, UCLA

1.3 ***1:30 pm - 2:00pm*** Privacy, Data and Research Data, understanding privacy in CA and how to plan for and manage GDPR.Section given by: Kent Wada, Chief Privacy Officer, UCLA

1.4 ***2pm - 3pm*** Collecting "New" Data, Mobile Responses, EMA Designs, Triggers and Suppression algorithms, Local and Push Notifications as well as Telemetry. Section Instructor - Rose Rocchio, UCLA

1.5 ***3pm - 4pm*** - Real Time Epidemiology data from personalized sensors, Visualizing and Analyzing it and doing Machine Learning with it

Section Instructor - Professor Sandy Eckel, PhD, USC

DAY 2: THUR.S. - August 8th, 2019 - Course Day 2

2.1 **1:00 - 1:30pm -** Architecting Data Infrastructure for collecting Mobile and Sensor Data - Professor Jose Luis Ambite, USC ISI

2.2 **1:30 - 2:15pm** Coordinating data sharing agreements with other Universities, 3rd Parties and Medical Organizations - Professor Alex Bui, Department of Medical Informatics Imaging, UCLA

2.3 **2:15pm - 3pm** - Research Data Curation & Publishing. Focus on how to curate data for reuse. Explore where to publish research data in an open access manner, and an introduction to the open access data movement - Nate Jacobs, PhD

2.4 **3pm - 3:45pm** - Introducing Accessibility and how to publish accessible research documents and data. Working out the accessibility of data and data visualizations such as images and graphs. Thinking ahead to AR and VR and how to make those environments accessible. Section Taught by Travis Lee

2.5 **3:45pm - 4pm** - Open Discussion about Data and Questions. Section Facilitated by Rose Rocchio, UCLA

Description:

This course will cover three important topics on communicating mobile and sensor research data, from data collection, to accessibility, to publishing mHealth data.

1. Collecting New Data in the World of Mobile Devices and Sensors: The genre of data collected with mobile devices and sensors presents an interesting set of challenges with regard to managing, curating, and publishing research data. Many of these research projects include collecting data from physical wearable sensors such as smart watches, air monitors, or on-phone sensors (accelerometer, GPS, etc). Further complicating this effort is the collecting of metadata about the status of each of the devices, such as battery, calibration, configuration, and interdevice communications. Further data about the context of the sensors and phone include the availability of wifi, delivery status of notifications, telemetry, user experiences, and self-report surveys from participants themselves. Additional challenges occur when integrating with commercial sensors and private-sector commercial cloud platforms. The capstone area of data in this realm of research projects includes participatory user survey responses, sometimes motivated by gamified compliance constructs. Attempting to utilize this type of data to measure user engagement encouraged by these techniques is a new area of exploration.

2. Making Research Data Accessible: Learn about the challenges facing researchers with disabilities and how you can empower this population though accessible design. People who are blind or low-vision or who have dyslexia rely on assistive technologies and screen reading software to “read text out loud” to them. However, many documents and data sets created are completely inaccessible or just frustrating for screenreader users. Learn accessible design and content management tools to make it easier for people with disabilities to engage with your research content, data, and documents. During this two-hour - active-learning session, you will learn the impact of accessible documents and data sets, as well as simple methods for building accessibility into current content. In addition, you will have an opportunity to gain hands-on experience building accessible documents and curating data.

3. Publishing Mobile Data and Metadata: Mobile devices and mHealth experiments allow for collection of more granular and personalized research data “in the field” during people’s daily routines. This creates challenges for how to formalize and share this large volume of data and metadata and how to interpret these new types of data. This section will discuss how mobile data, particularly in mHealth projects, can be captured and formalized appropriately for later publication in data repositories or supplemental materials. The value of research data from mobile devices is still emerging; however, it is expected to become highly valuable in aggregate.

Level: Beginner

Intended audience: This course is for anyone who is interested in collecting "new data" using mobile devices, wearables, and sensors. This could include professors and researchers in data science or statistics; and those in psychology, sociology, political science, anthropology, or any field that includes the study of people. Work in all of these fields can be improved by enhanced data collection using EMA (Ecological Momentary Assessment) techniques.

Requirements: Participants should download the ohmageX app from either the iOS Store or the Android Store for use during this course.

Course Learning Objectives

At the end of this course, participants will be able to:

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Course Topics

This course will be presented over two days for 3 hours each afternoon and will cover these topics:

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Course Schedule

Day 1 **<Add topics below and instructor who will be teaching each topic>**

- Example: Topic 1 (Smith)
- Example: Topic 2 (Jones)
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Day 2

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Course Materials and Supplies Required **<List requirements to participate, such as documents, books, laptops needed, downloads, etc.>**

Students are expected to have <read, downloaded, etc> this material before the course begins:

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Other Resources

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Other Helpful Information