

## **ECE1780 Lecture 1**

# **Advanced Mobile UI**

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# About Me

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# **Interacting with mobile devices is different than with desktop computers**

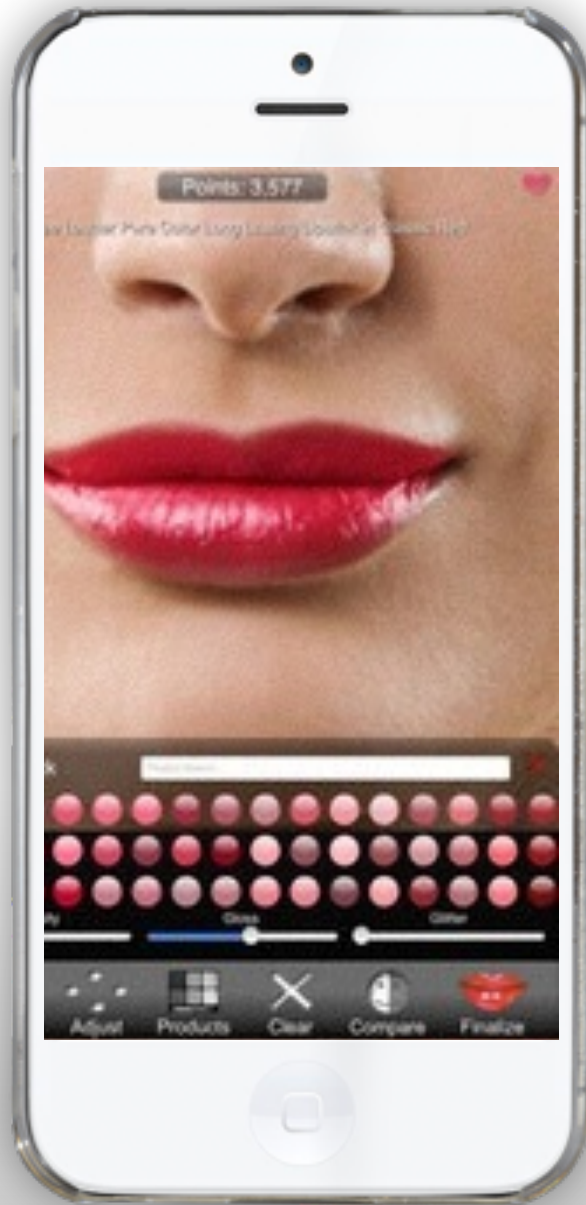
Different form factor, usage scenarios, applications, ...

## **How do we create effective mobile user interfaces?**

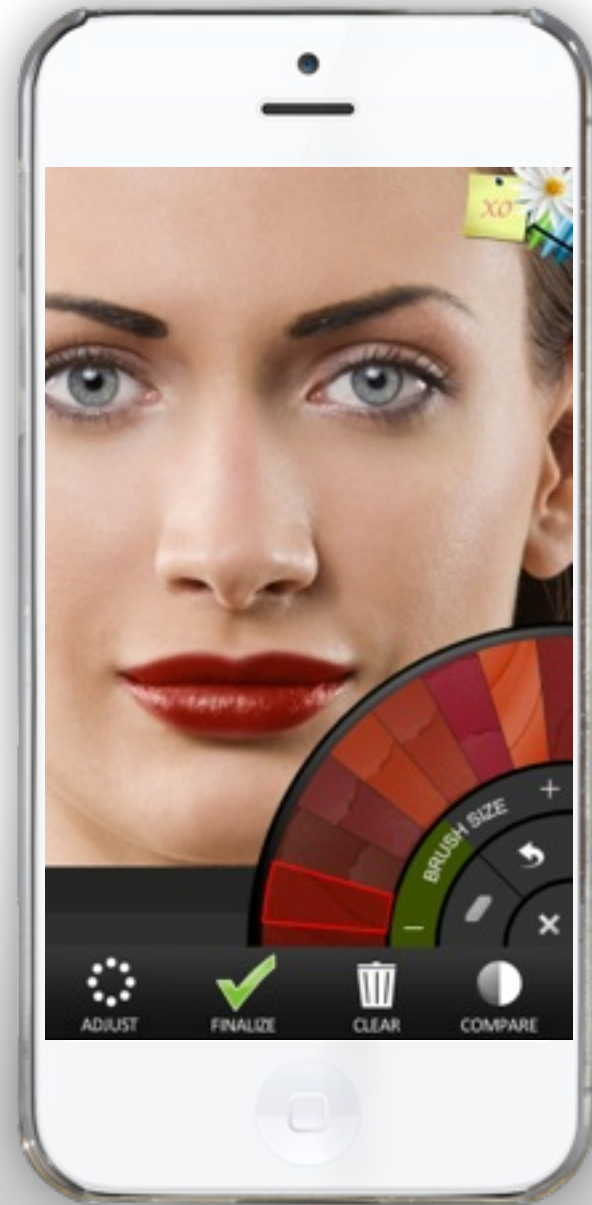
# Ideal Mobile UI Design

- How big should buttons be?
- Where should buttons be placed?
- What touch actions are more user friendly?
- How do we quantitatively measure UI design efficiency?

# MOBILE USER INTERFACE OPTIMIZATION



vs.



# Human-Mobile Speech Interfaces

- Touch-based interaction has limits. In many cases speech interfaces are more natural (i.e. Siri, Google Now, ...)
- How does it work?
- What is it good for? What is it not good for?
- Where are speech interfaces headed?

Speech recognition (for humans or computers) doesn't work when there is a lot of noise

How do we make speech recognition more robust?

Can we learn from human speech recognition?

Why two ears are better than one ...

Human-like interactions require conversational interfaces.

How do we create a conversational interface (i.e. a system that can talk to you and ask questions)?

In other words, if you wanted to create the back-end for Siri, where would you start?



**Up until now, we have discussed  
touch and speech interfaces**

Are these the only UI modalities?

**Other options:**

Human-brain interfaces, gesture  
interfaces, biometric interfaces, ...

# What you need to do for ECE1780:

- 1) Create a mobile app with a good+unique UI
- 2) Present your initial app idea (by Sept. 29)
- 3) Demo functional app (by Oct. 20)
- 4) Demo your final app (Nov. 3+24+ Dec. 1)
- 5) Write a final report paper (4-6 pages)

# Creating your app

- 1) Work in groups of 1-3 (on iOS OR Android)
- 2) Start with an application that does something useful (note taker, alarm, email reader ...)
- 3) **Make sure the design and UI are unique/optimized and carefully thought out**
- 4) **MUST BE COMPLETE BY DEC. 1**

# Grading Scheme

- 1) Do you have a full app proposal by Sept. 29? 10%
- 2) Does your app work by Oct. 20? 30%
- 3) Final Presentation? 30%
- 4) Final report? 30%

**Note: You need 70% to pass the course!**

# Course Schedule

Sept. 8 - Lecture 1A+1B

Sept. 15 - Overview of 2013 project + group formation

Sept. 22 - Lecture 2A+2B

**Sept. 29 - Project Proposal Presentations (10%)**

Oct. 6 - Lecture 3A+3B

Oct. 13 - THANKSGIVING HOLIDAY

**Oct. 20 - Functional Demo (30%)**

Oct. 27 - Group Discussion/Meeting Hours

**Nov. 3 - Final Demo Rehearsal 1 (0%)**

Nov. 10 - NO CLASS

Nov. 17 - Group Discussion/Meeting Hours

**Nov. 24 - Final Demo Rehearsal 2 (0%) + Prelim. Report Due (0%)**

**Dec. 1 - Final Demo (30%) + Final Report Due (30%)**

# Example Project: Medical Directory

Build a face-to-name directory for doctors and nurses at Toronto General Hospital

Utility: Many doctors and nurses don't know each other's names, and shifts.

Unique UI: Simplicity. Minimalism. Doctors and nurses don't have a lot of time - so the app has to be to the point and efficient.

## Example Project: Magic Alarm

Simple alarm, where you can tap any surface for it to snooze.

Could include more advanced features such as double-tap for weather, etc.

Unique UI: Extended Touch UI.

# Example Project: Audio Browser

A completely vocal app that reads websites and lets the users to navigate only using audio.

Unique UI: Audio-only browser UI (would be great for cars or for the blind).



# Example Project: Todo

Track different to-do tasks with a very unique interface. (i.e. even simpler than “Clear”)

Unique UI: Dead-simple UI with just a few gestures.

# Example Project: Pocket Control

Activate different phone actions by different taps on the device (i.e. controlling a phone without taking it out of your pocket).

Unique UI: Simple tap-based UI to control your phone actions without taking it out of your pocket or purse.

# Example Project: MorphType Keyboard

Build a dynamic keyboard (with the keys resizing) based on a probabilistic language model.

Unique UI: Dynamic keyboard interface.