

Twitter and Socket.IO

No screens



Prof. Lydia Chilton
COMS 6998
12 October 2018

Say your name



User Interface Design

COMS 4170 · Spring 2018

Home Syllabus Assignments ▾

Part 1 Build websites that suit the needs and abilities of users.

Part 2 When the needs and abilities of users are uncertain, design systems

You already know front-end web dev:
HTML, JavaScript, Bootstrap, jQuery

And design:
Iterative design, critique

Advanced Web Design Studio

COMS 6998 · Fall 2018

Home Syllabus

Goals

1. Master front-end and back-end technologies for making interactive websites.
2. Discover specific user needs by developing a low-level, mechanical model of human behavior.
3. Practice iterative design to meet specific user needs.

INSTRUCTOR

Prof. Lydia Chilton
OH: Tuesdays 4-5, CEPSR 612

Please contact staff through [Piazza](#) only

TAS

Katy Gero
OH: TBA, CS OH room

Savvas Petridis
OH: TBA, CS OH room

You will learn back-end web dev:

- Server-side programming (Flask),
- **Databases (Sqlite, SQLAlchemy)**
- Real-time Communication (Socket.IO)

And practice web design by:

- **Rebuilding IMDB.com**
- Rebuilding twitter
- Pursuing your own project

Last week's goal: Implement User Accounts

- Extend your application by adding one feature that requires user accounts.
 - Define your own high level goal
 - Define 7-10 low level goals you will need to achieve this.
 - You must implement **user accounts**
 - Add a feature to your site that requires user account.
 - The **graphic design** should reflect the intent of the application to the user.
 - Please iterate on the graphic design based on your feedback today.

Studio: 20 minutes

User testing the new user feature

Partner up!

Right hand side partner goes is the **developer** first (the other person is the **user**)

Developer: tell the user who they are and what their goal is BUT NOT WHAT TO DO.

User: if the developer tries to tell you what to do, cover your ears!

User: Try to accomplish the goal. Be honest! Were you able to complete the goal.

Developer: Observe user actions and critical incidents: failures, confusions, and any stress or difficulty the user had.

Developer / User: Make clarifications ONLY as a last resort, when it is the only way to make progress.

Wait for the TAs to come around and observe.

If you finish before we call time, have a conversation on **how you implemented the user feature**.

When we call time, switch roles!

Due by 9pm today on Piazza – write one thing you learned from user testing today.

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Rebuilding Twitter

General goals are really **domains**.

By picking a **specific need** in the **domain**,
you can then **generalize** other other thing in that **domain**.



Domain

Online shopping

Specific Need

Uncommon books

Generalized to

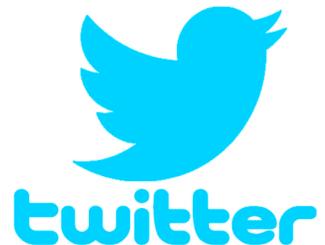
Clothes,
Food,
Amazon Fresh
Other sellers



Social Network

Harvard students to
look up each other's
classes

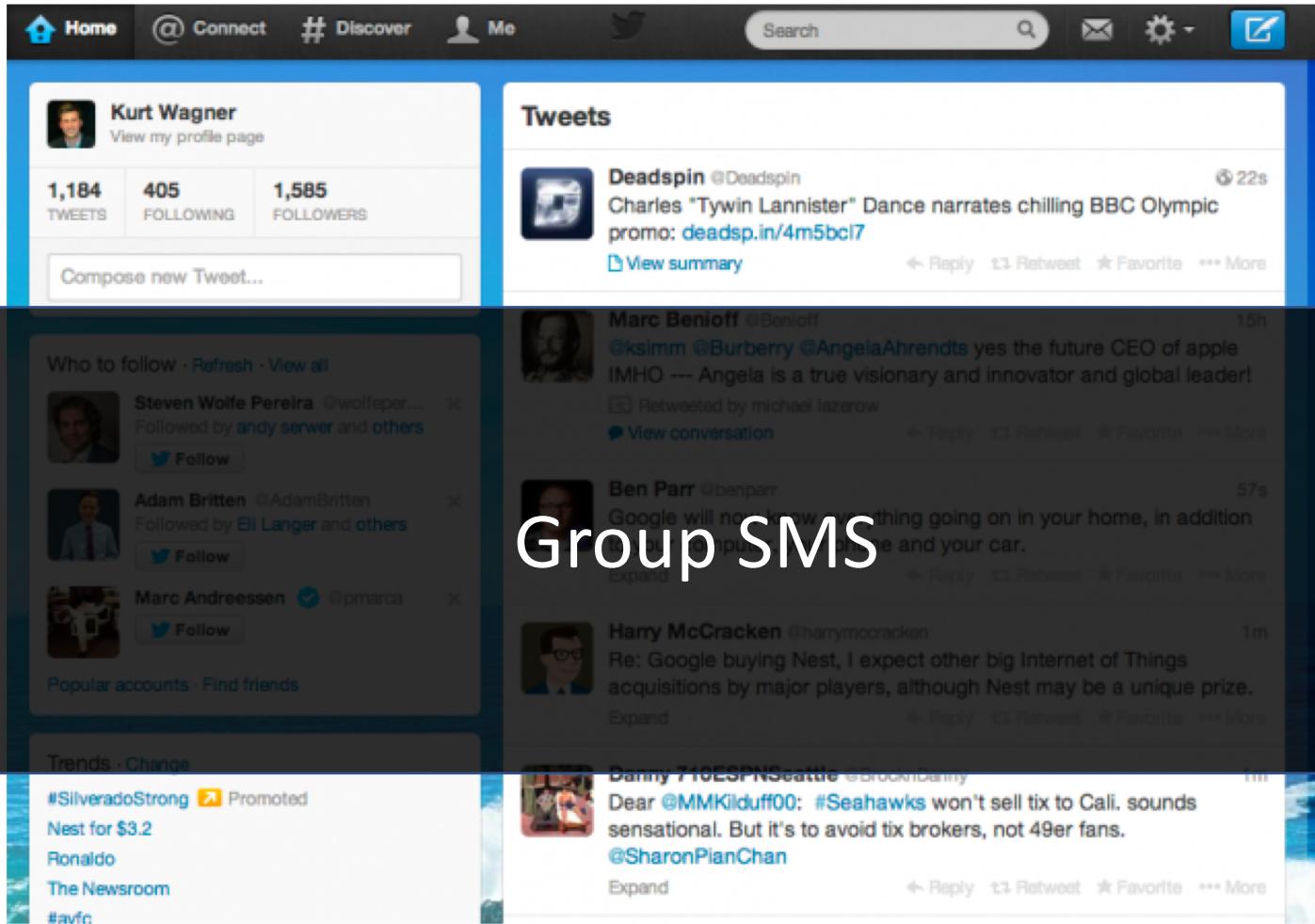
Ivy League
US Colleges
Everybody



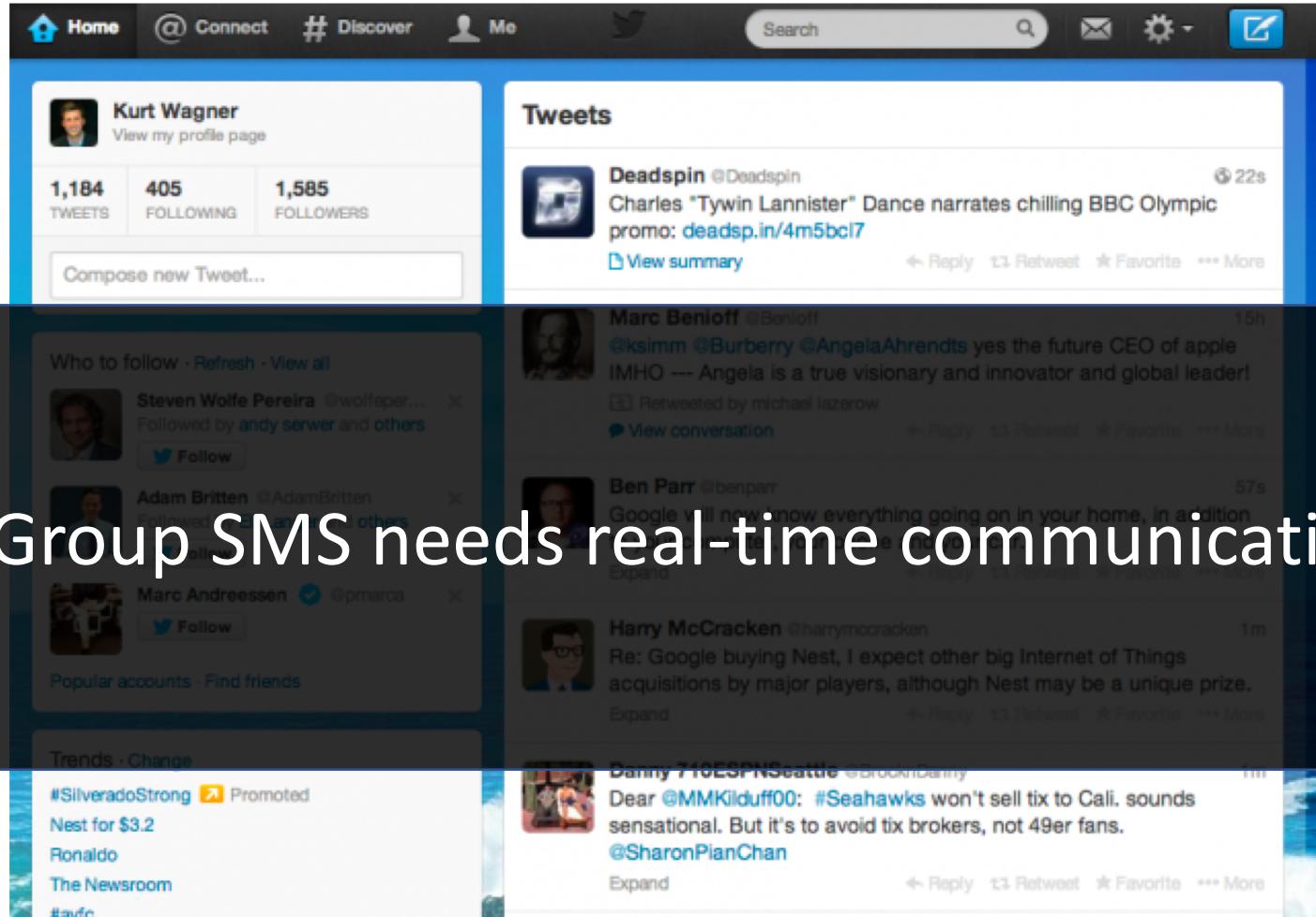
Social Network

Images,
Political movements,
Celebrities connecting with fans
advertising

What specific user need did Twitter initially serve?



We prototype/build the riskiest feature first. What is the riskiest features necessary for this?



Getting new data: Pull model vs. Push model

How do users get new data
from the **IMDB** server?



Find Movies, TV shows, Celebrities and more... All

Movies, TV & Showtimes Celebs, Events & Photos News & Community Watchlist (2)

FULL CAST AND CREW | TRIVIA | USER REVIEWS | IMDbPro | MORE

+ Crazy Rich Asians (2018) ★ 7.5 30,279 Rate This

PG-13 | 2h | Comedy, Romance | 15 August 2018 (USA)

CRAZY RICH ASIANS

2:25 | Trailer 11 VIDEOS | 59 IMAGES

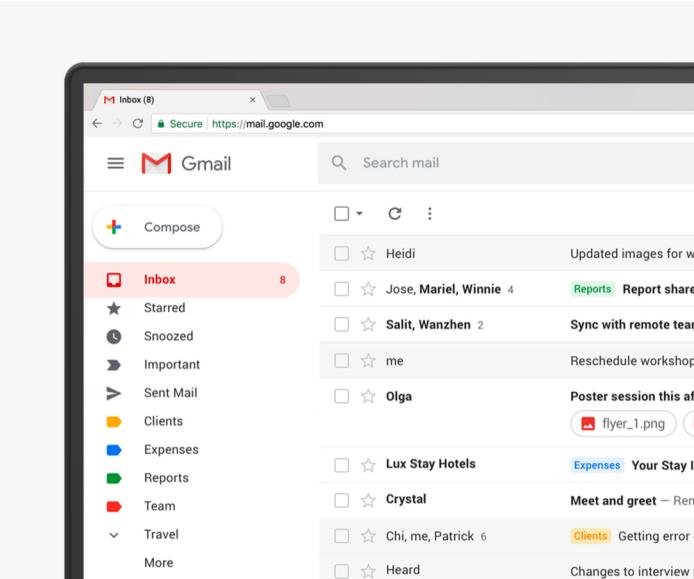
Get Showtimes & Tickets In 8 theaters near New York NY US [change]

This contemporary romantic comedy, based on a global bestseller, follows native New Yorker Rachel Chu to Singapore to meet her boyfriend's family.

Director: Jon M. Chu
Writers: Peter Chiarelli (screenplay by), Adele Lim (screenplay by) | 1 more credit »
Stars: Constance Wu, Henry Golding, Michelle Yeoh | See full cast & crew »

Pull model –
driven by user clicks

How do users get new data
from the **GMail** server?



Inbox (8)

Compose

Inbox 8

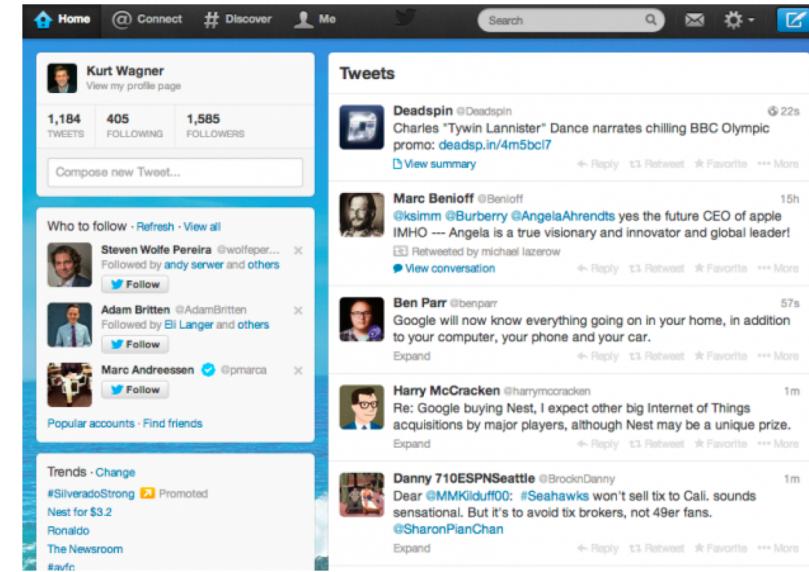
Starred Snoozed Important Sent Mail Clients Expenses Reports Team Travel More

Heidi Updated images for w
Jose, Mariel, Winnie 4 Reports Report share
Salit, Wanzen 2 Sync with remote tear
me Reschedule workshop
Olga Poster session this af
Lux Stay Hotels Expenses Your Stay I
Crystal Meet and greet — Rem
Chi, me, Patrick 6 Clients Getting error c
Heard Changes to interview j

Pull model –
Driven by a timer on the client side

For the server to push data,
we need more than HTTP.
We need WebSockets.
SocketIO implements **WebSockets**

How do users get new data
from the **Twitter** server?



Kurt Wagner View my profile page

1,184 TWEETS 405 FOLLOWING 1,585 FOLLOWERS

Compose new Tweet...

Who to follow · Refresh · View all

Steven Wolfe Pereira @wolfeperer... Followed by andy.sherer and others

Adam Britten @AdamBritten Followed by Eli Langer and others

Marc Andreessen @pmarca Follow

Popular accounts · Find friends

Trends · Change

#SilveradoStrong Promoted Nest for \$3.2 Ronaldo The Newsroom #avfn

Push model –
Driven by updates on the server

SocketIO is a framework to send and receive messages

Client side

```
25
26 $(document).ready(function(){
27   |   var socket = io.connect('http://localhost:5000/')
28   |   socket.on('connect', function(){
29     |     console.log("User has connected")
30   })
31 }
32 }
```

```
35
36   socket.on('message', function(msg){
37     |     $("#messages").append("<li>" +msg+ "</li>")
38   })
39 }
40 }
```

Server side

```
8
9   from flask_socketio import SocketIO, send
10  socketio = SocketIO(app)
11
```

```
14
15  @socketio.on('message')
16  def handleMessage(msg):
17    |    send_(msg, broadcast = True)
18
```

```
40
41   $("#sendButton").on('click', function(){
42     |     var myMessage = $("#myMessage").val()
43     |     socket.send(myMessage)
44   })
45 }
```

For next week

- Implement the **real-time synchronous group chat aspect of Twitter**
 - Must have user accounts
 - Must have a database of history
 - Chats must appear in real-time using Socket.IO
 - must include message and the send's name
 - Needs to have a homepage of all messages
 - Needs to have pages for individual users messages
 - Users must be able to reply to a message (stretch goal)
- Don't need to implement:
 - Hashtags / trending topics
 - Profile pictures
 - search

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