Let Me Know: A Dialogue For Notifications

Project Pitch – CS294S Fall 2020
Goal: Event-based Notifications

- **Notifications** are useful across many domains
  - “Let me know if it will rain tomorrow”
  - “Let me know if Juventus wins”
  - “Let me know when the presidential debate starts”
- More general than reminders and timers
- Can be combined with **actions**
  - “Retract the awning if it starts raining”
  - “Turn on the TV when the presidential debate starts”
- With **filters**
  - “Let me know when someone tweets with #NLProc”
- With **parameter passing**
  - “When someone commits a release to GitHub, post the message on Twitter”
Problem Statement

- Almond supported notifications & trigger-action since day 1
- In one sentence:
  
  $\text{when, filters} \Rightarrow \text{get, filters} \Rightarrow \text{do}$

- Whole statement in one sentence is too complex
- Can we use a dialogue to build the program incrementally?
Example (Basic)

U: When is the next presidential debate?
A: The next presidential debate is Tuesday Sep 29.
U: Let me know when it starts.
A: Sure I will remind you.
U: Also turn on the TV at that time.
A: OK, I will turn on your TV when the presidential debate starts.
Example (Proactive)

U: When is the next presidential debate?
A: The next presidential debate is Tuesday Sep 29. Would you like to be notified when it starts?
U: Yes please!
A: Sure I will remind you. Would you also like me to perform an action at that time?
U: Yeah turn on the TV.
A: OK, I will turn on your TV when the presidential debate starts.
High-Level Project Plan

- Step 0: choose skill setting (e.g. Twitter, IoT)
- Step 1: design dialogues
  - With pen and paper
  - Or, these days, with zoom whiteboard and wiki pages
  - Examples: [https://wiki.almond.stanford.edu/nlp/contextual-sentences](https://wiki.almond.stanford.edu/nlp/contextual-sentences)
- Step 2: templatize
  - Write skill-independent templates for dialogue state transitions
  - (Will be explained in the next lecture)
- Step 3: write example dialogues for evaluation
- Step 4: train, evaluate, iterate, get good accuracy
- Step 5: demo with real agent
- Step 6: profit!
Why You Should Work on This Project

- **Push the envelope**: build a capability no commercial assistant has!
- **Multidisciplinary**: HCI (dialogue design) + AI (getting the accuracy)
- **Multiple use cases**: choose your own!
- **Already started**: existing Almond work as starting point