Overview

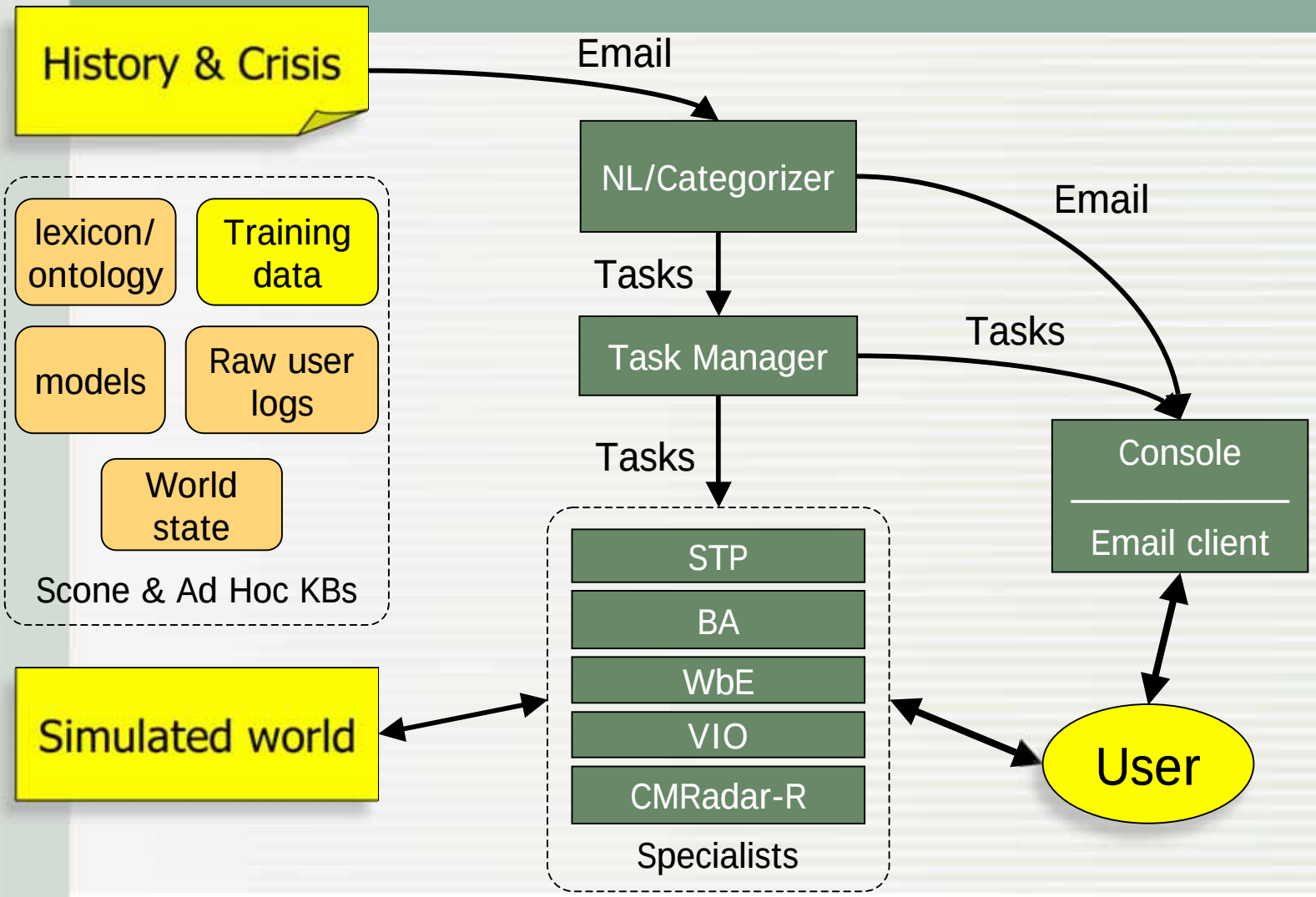
Bitway, Inc.

A cognitive assistant that learns to help a human user handle information overload

Radar (DARPA PAL Program)

- A cognitive assistant that speeds up deskwork
  - Enables inexperienced personnel to get the task done
- Learns in the wild from daily use
  - NOT brute force feeding or programming
- Combines artificial intelligence with human-computer interaction
- Realistic human-in-the-loop experiments
  - Crisis affects an existing conference plan
  - Subject fills in for original planner, must handle the crisis and other conference related tasks

Integrated RADAR System



Multi-ML System: RADAR (Part 1)

- Integration of multiple Machine Learning components (*current list*)
  - Space Time Planner (STP): elicitation of facts about the physical world in order to do better optimizations
    - Remembers facts (e.g. room capacity, audio/visual equipment) used to generate better plans. During initial use, an elicitor programs asks users for the most important facts.
  - Classifier and NLP: assign task-oriented labels to email messages
    - Identifies and labels important parts of messages (e.g. dates, places, tasks). Labeled messages are used by other components to pre-populate forms.
  - Virtual Information Officer (VIO): extraction and facilitation of specific information updates on websites
    - Prepares pre-populated web page update forms. After user completes form (if necessary) and signals approval, the web site is automatically updated.

Multi-ML System: RADAR (Part 2)

- Integration of multiple Machine Learning components (*current list*)
  - Workflow-by-Example (WbE): batch website updates from training on file fields, exception handling
    - Observes repetitive cut and paste tasks and after a few iterations completes task
  - CMRadar-Rooms (aka Room Finder): resource scrounging by learning owner responses
    - Observes responses of resource owners (e.g. rooms, meetings, personal calendar) to learn their preferences (e.g. no meetings before noon) to minimize the number of future unsuccessful requests. If all participants are represented by CMRadar software agents, shared negotiations satisfying personal preferences (e.g. picking a meeting time) can occur automatically.
  - Briefing Assistant (BA): summarization of activity
    - Prepare a draft briefing based on observed task manager accomplishments. Observes user's preferences for selection from dynamic bullet templates (e.g. meetings held, demonstrations accomplished, hardware issues) and presorts templates according to preferences.

The Test

- Three day conference with tutorials, workshops, sessions, catering
- Back story in e-mail stack
- Crisis happens (e.g. lose main meeting hall due to last minute change)
- Users must repair the conference plan as much as possible in two hours
  - Find new available rooms with appropriate capacity
  - Notify vendors (food, audio/visual,…)
  - Notify speakers, update website, brief organizers
  - Accommodate last minute speaker variations
- Subjects do one of three cases: COTS, -L, +L (30 to 35 subjects each)

RADAR Test World Web Pages

The Flagstaff Hotel

Contact:
1 Flagstaff Ct
Pittsburgh, PA 15213
412-268-1314
info@flagstaffhotel.org

A safe, sound, and peaceful stay

We are a full service hotel in the Oakland neighborhood of Pittsburgh, PA directly adjacent to Carnegie Mellon University, Phipps Conservatory and Botanical Gardens, Schenley Park, Carnegie Library of Pittsburgh, Carnegie Museum of Art, and the Carnegie Museum of Natural History. The Hotel is a 5-minute walk from the University of Pittsburgh and the UPMC Hospitals. We specialize in excellent service, Frisbee Golf conventions and competitions, and dry humor.

RADAR Test World Resources

Carnegie Mellon

Stever Hall

Set-Up Styles

University Center Room Specifications

Stever Hall Room Specifications

Carnegie Mellon University Planning

Campus Map

Directions to Campus

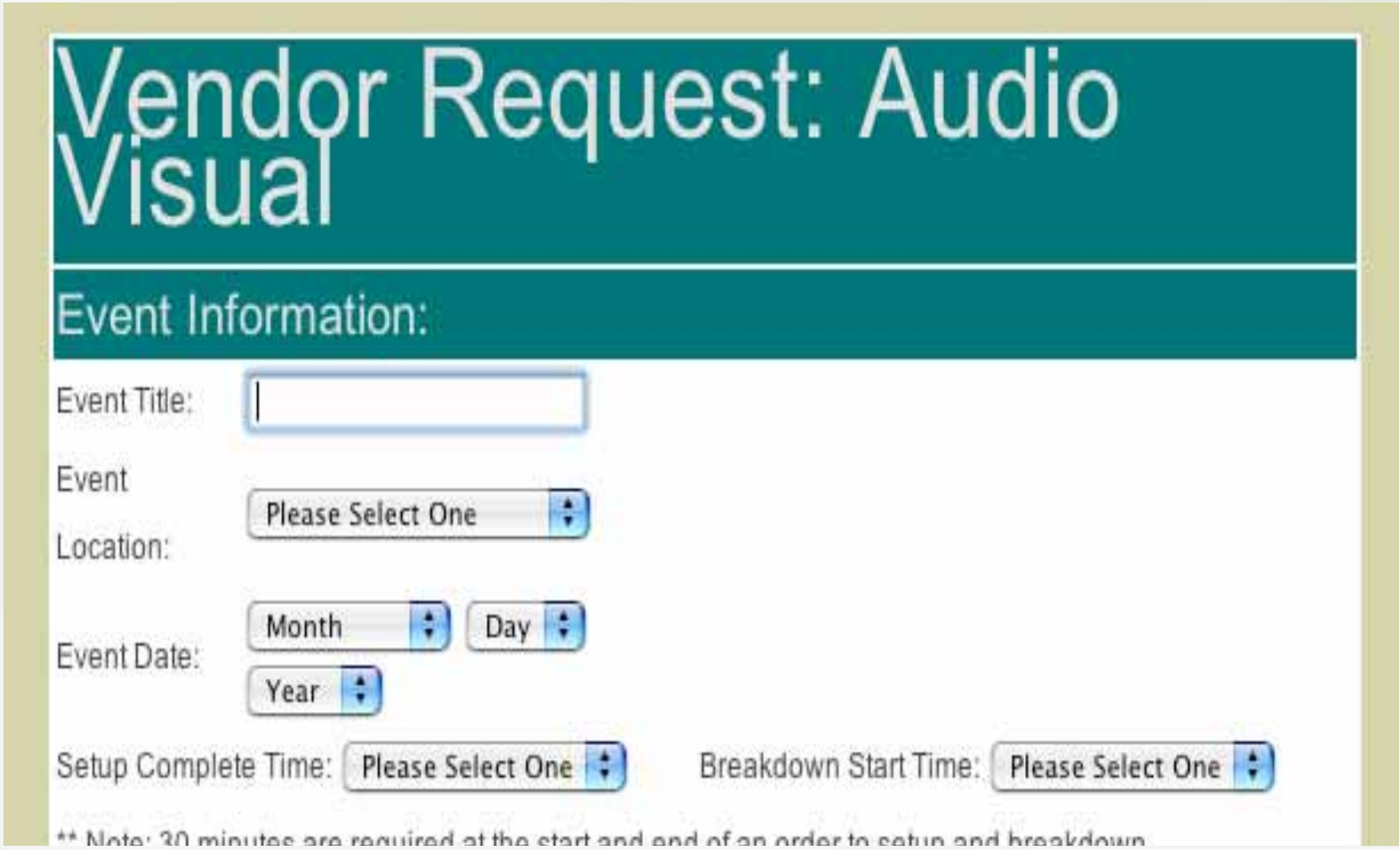
Event Planning

ROOM SPECIFICATIONS

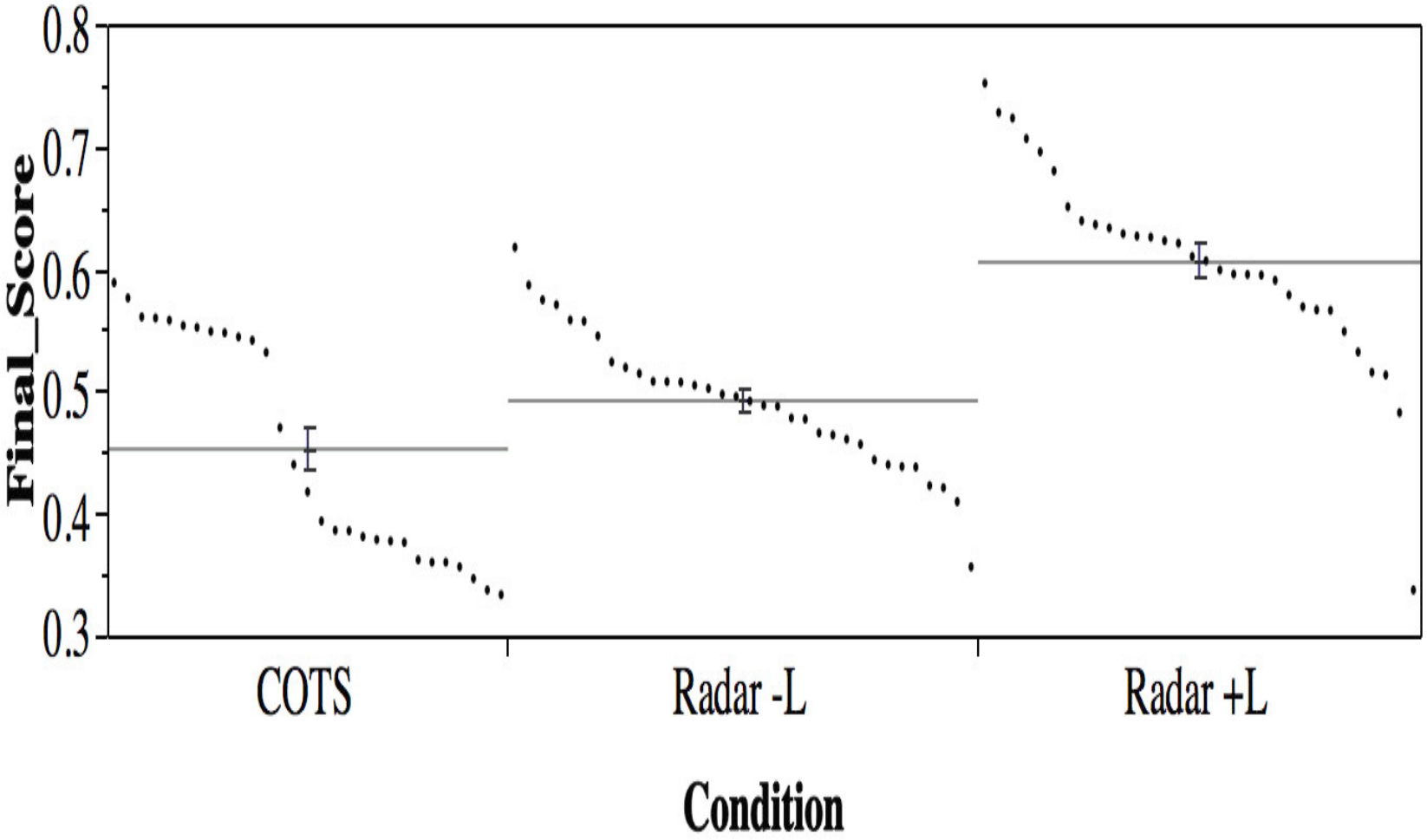
Classrooms:

	Floor	Square Footage	Dimensions	Ceiling Height	Theater	Classroom	Banquet	Reception	Hollow Square	U-Shaped	Conference
1250	L	726	34.83' x 21.92'	9	60	33	60	83	30	26	28
1260	L	1064	38.42' x 27.5'	9	120	63	100	120	36	31	30
1270	L	440	22' x 20'	9	40	24	30	51	16	13	16
1340	L	851	36.75' x 22.92'	9	90	54	70	98	30	26	36
1440		945	36.75' x 26.58'	9	96	54	70	108	30	26	28
2255	M	486	26.58' x 18.5'	9	45	24	36	56	24	21	22
2260	M	1014	38.58' x	9	100	54	80	117	36	31	34

RADAR Test World Requests



Year 2 Crisis Test Results



System Quality

- How do we know when a system of probabilistic systems is responding appropriately
  - What is “ground truth”
  - What are the metrics
- How do we determine whether source of problem is programming versus learned data
- How do we “unlearn” bad information