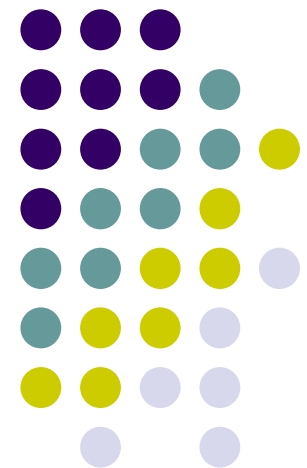


Ubiquitous and Mobile Computing

CS 528: Meeting Rescheduling as a Socially-Sensed Indicator of Progressive Workplace Disengagement

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Introduction

Problem: Costs associated with Employee Turnover

- One third of industries surveyed see annual voluntary turnover exceeding 20%.
- Average cost of replacement: 20% of employee salary (lost productivity, hiring, re-training)
- Loss of "Intellectual Capital"

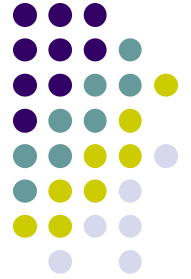
Challenge: Identifying at-risk employees and taking action before they leave





Questions

- Does employee dissatisfaction manifest itself in specific behaviors?
- Can mobile app be used to detect this behavior?
- Can the behavior then be used to identify at-risk employees?



Related Work

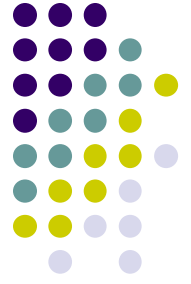
(Employee Withdrawal and Meetings)

Rotberg et.al (2014):

- Meeting Lateness correlated to Job Satisfaction, Intent To Quit
- 195 individuals "working full time"
- Data captured using individual self-report (survey)

Our Study:

- Reschedule event (vs lateness)
- Cellphone captured empirical data (vs self-assessment survey)



Related Work

(Employee Withdrawal - Models)

- Koslowsky(2009):
 - Major Behaviors (lateness, absence, turnover)
 - Minor Behaviors (loafing, lack of effort, long lunch breaks, surfing the web)
- Withdrawal as a Progressive Process
 - Antecedents (underlying cause)
 - Cognitions (feelings the employee can identify)
 - Behavior (externally observable)



Related Work

(Koslowsky 2009)

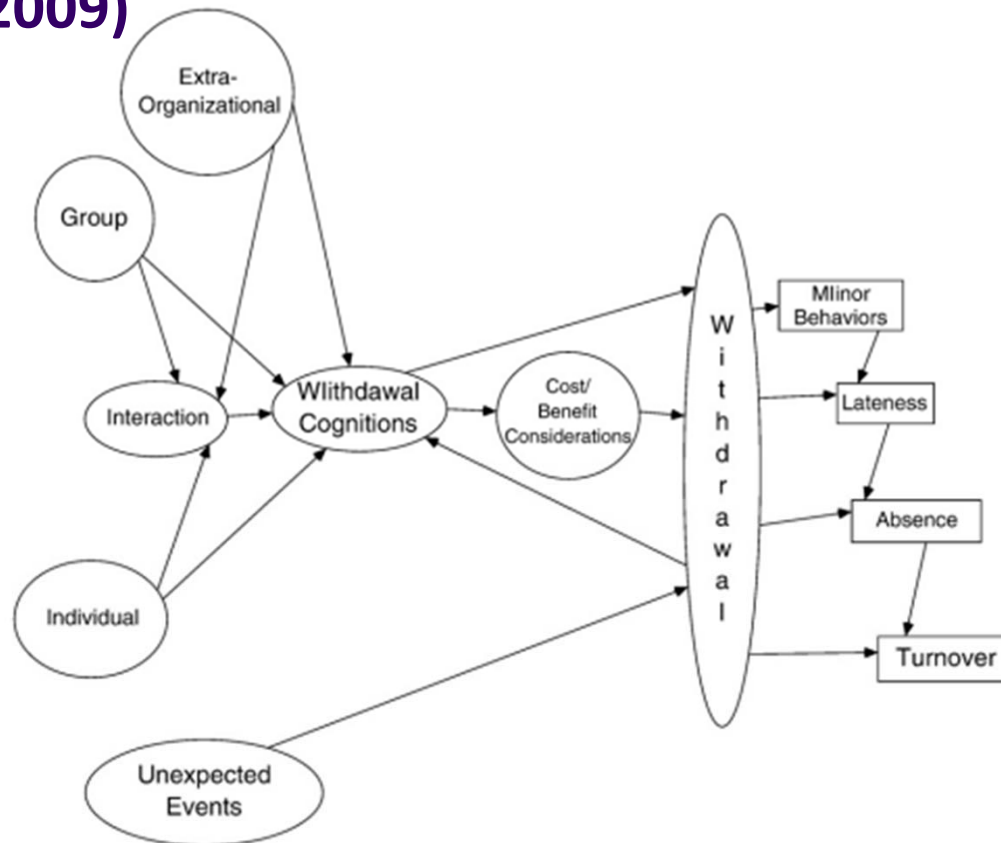


Fig. 1. A multi-level model of withdrawal behavior.

Antecedents



Cognitions



Behavior



Our Goal

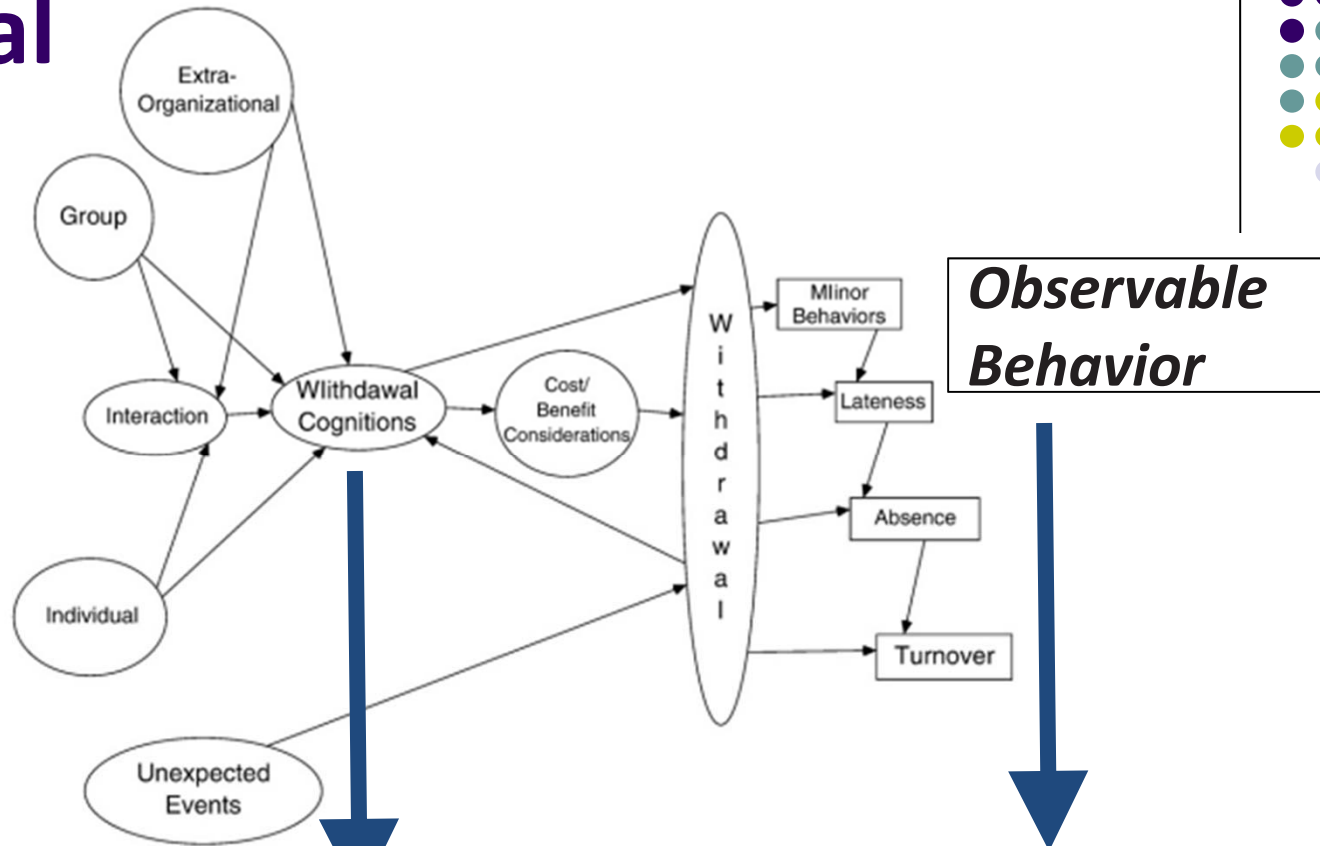
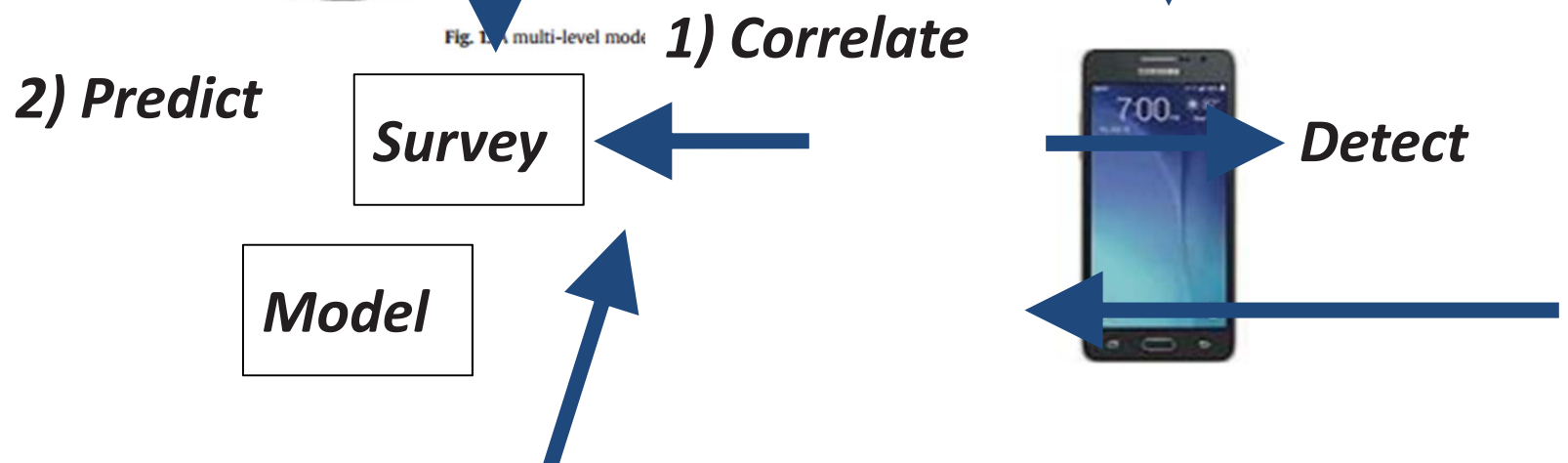
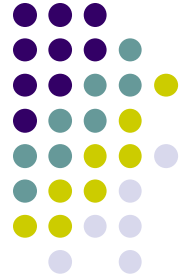


Fig. 1. A multi-level model



Methodology

(Information Collected)



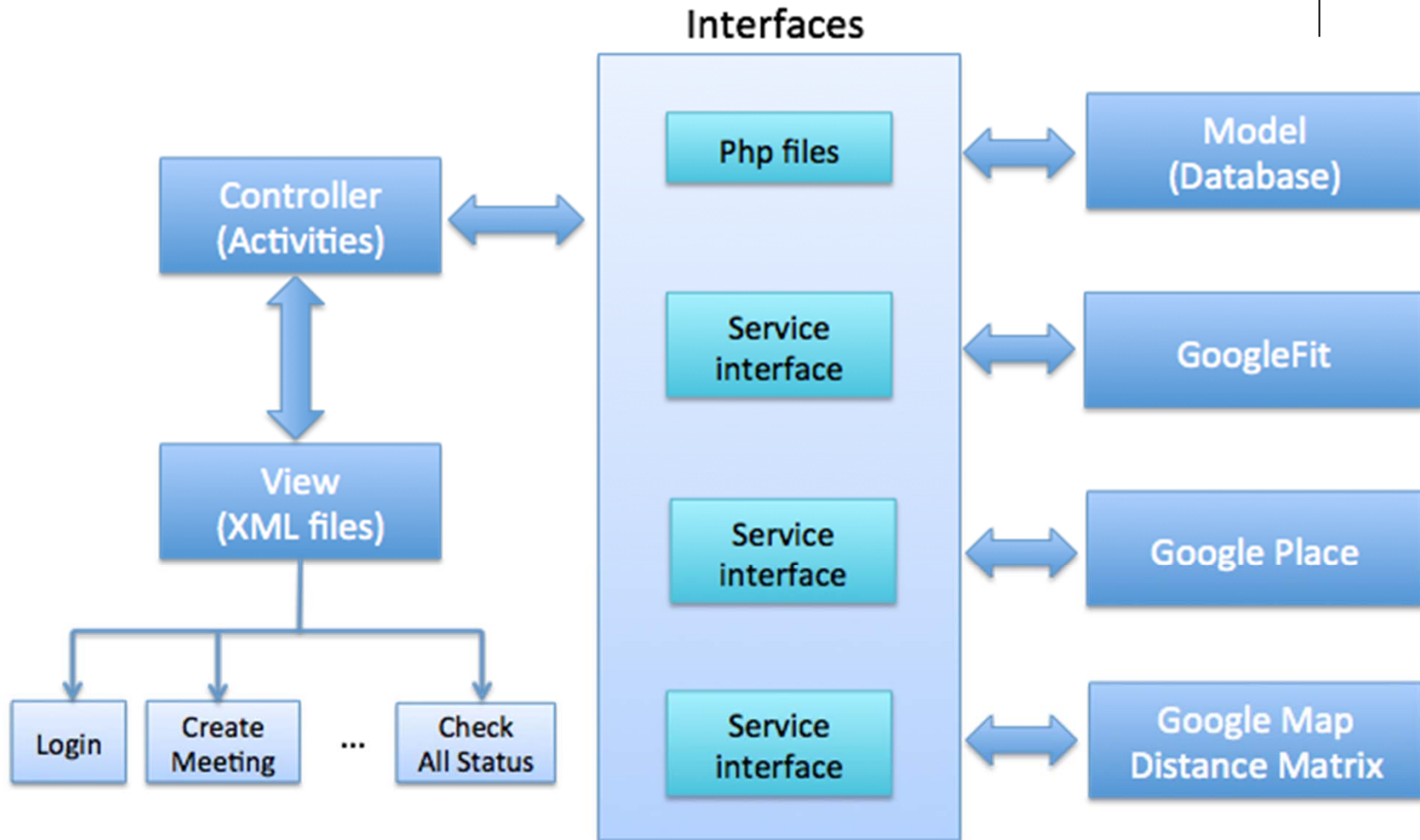
Observed Behavior Data:

- Meeting Manager application
- Schedule meetings with specific time and location
- Attendees can request a reschedule of the meeting start time (reschedule event)

Ground Truth Withdrawal Cognition

- Daily pop-up survey
- Self-identify enthusiasm about upcoming meetings, job, home/family life

Implementation (Architecture/Overview)



Implementation

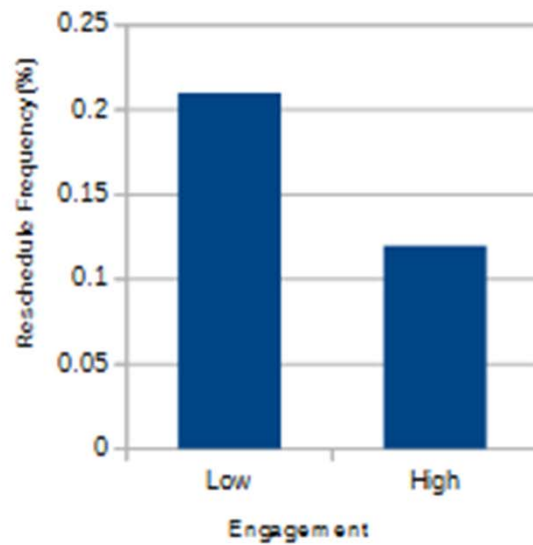
(screens/video)



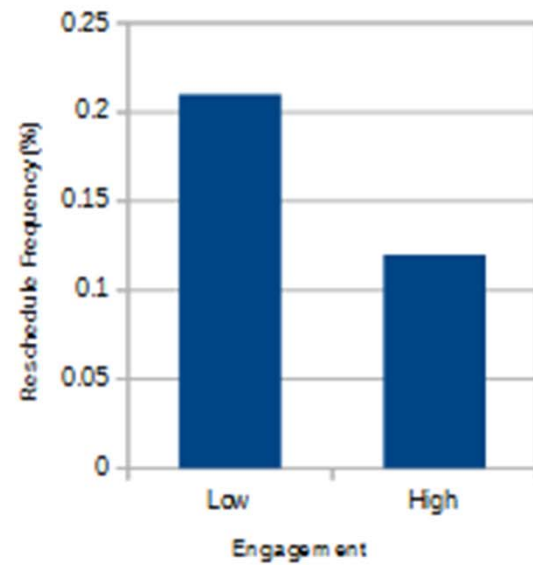


Results

Behavioral Effect of Job Engagement

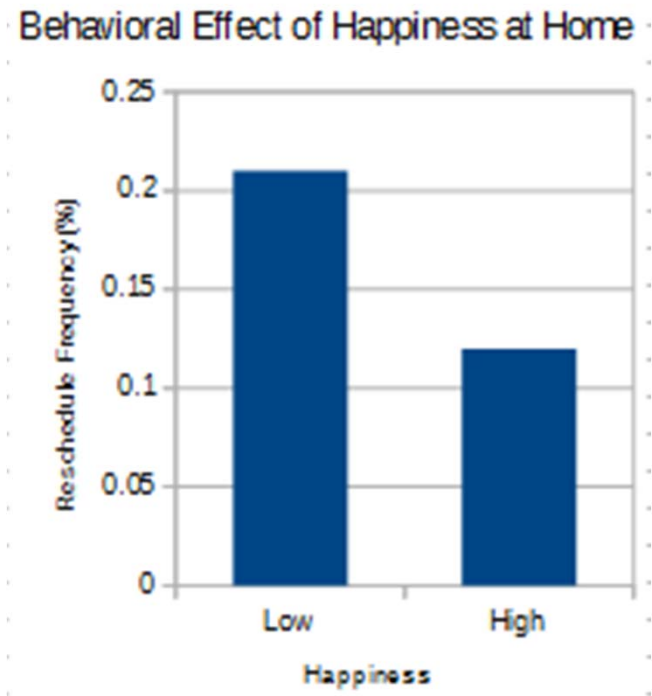
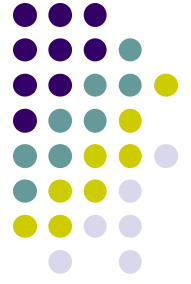


Behavioral Effect of Project Engagement



(artificial data)

Results



(artificial data)

Conclusion



Industry Tool

- Early predictor of disengagement
- Tool to reduce employee turnover through early action

Research/Modeling

- Mobile phone as mechanism to capture meeting reschedule events
- Correlation between meeting reschedule frequency and job and project enthusiasm
- Improved model of employee disengagement



Future Work

Predictive Model

- Classify withdrawal based on observed behavior

Additional sensor-based data:

- Bluetooth co-location (evidence of arrival time / promptness)

SMS communication and app usage data

- Evidence of inattentive behavior / lack of interest

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