

Mobile Targeting



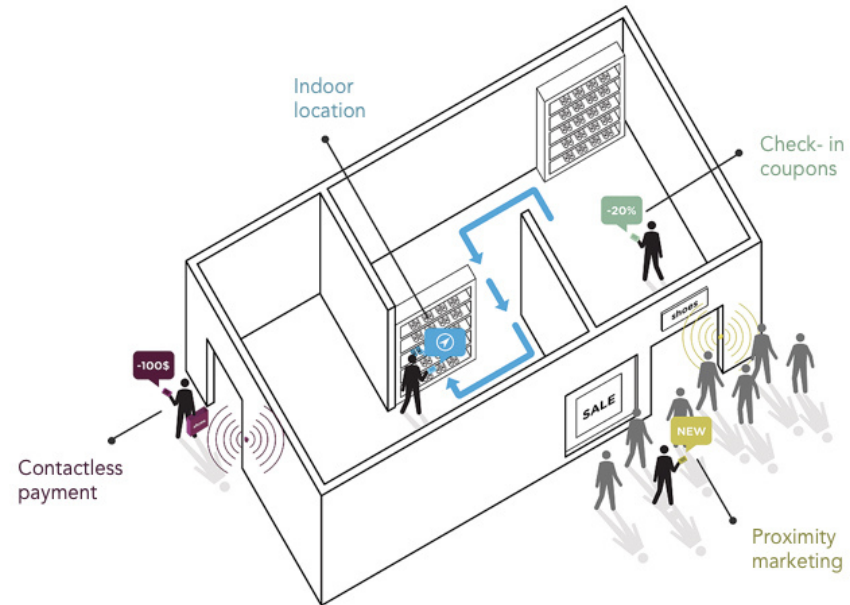
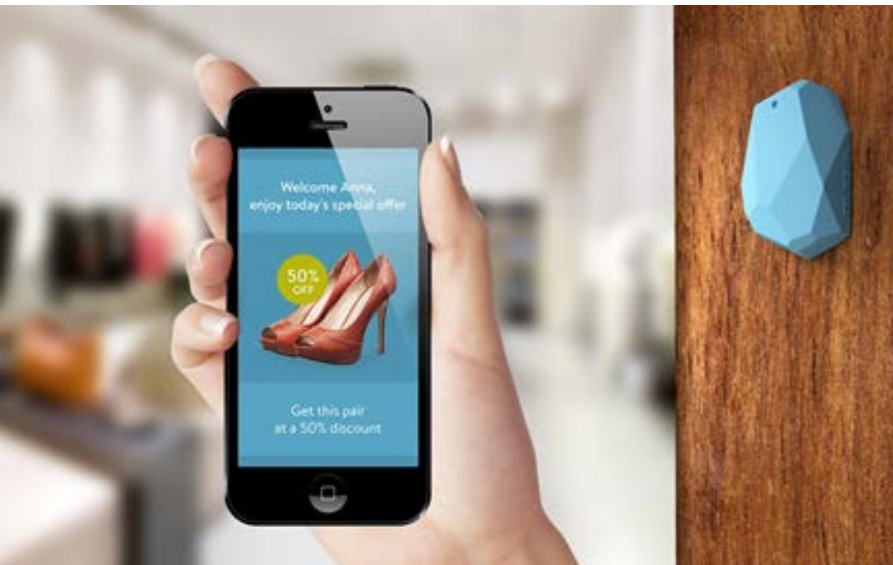
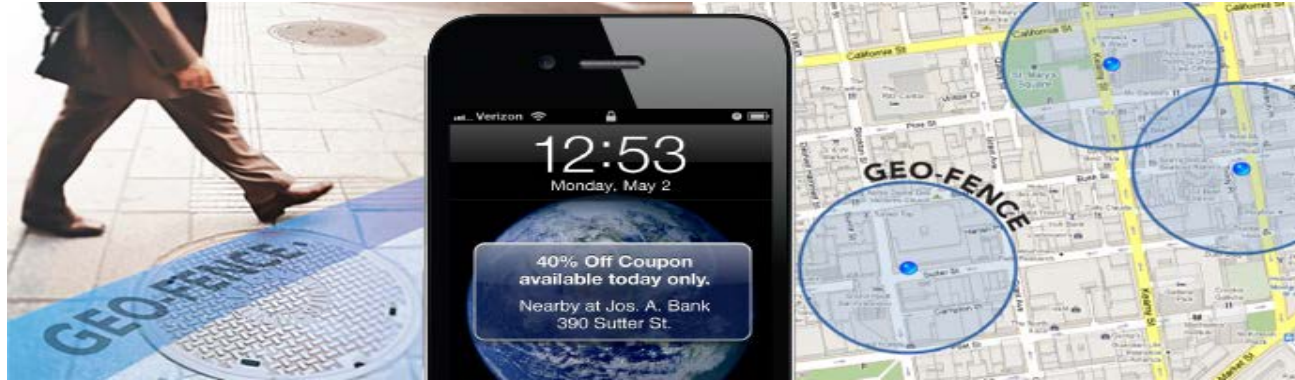
Xueming Luo
Temple University

Michelle Andrews
Temple University

Zhang Fang
Sichuan University

Chee Wei Phang
Fudan University

Background



Uniqueness of Mobile Technology

- Mobile Portability = Real-time Targeting
- GPS, Wi-Fi, Bluetooth, iBeacon = Geo-Targeting
- Geo-Targeting + Temporal Targeting



Research Questions

(1) How do timing and location in combination affect mobile sales?

(2) What are the underlying mechanisms for these effects?



Contextual Marketing Theory

- Efforts to influence purchases must be context dependent
 - Portability enables ubiquitous reach and time-sensitive offerings
- ? Temporal & spatial boundaries may interactively impact behavior
 - Decision to attend event is function of event time and place
 - Ex: web usage contexts affect revisit intentions

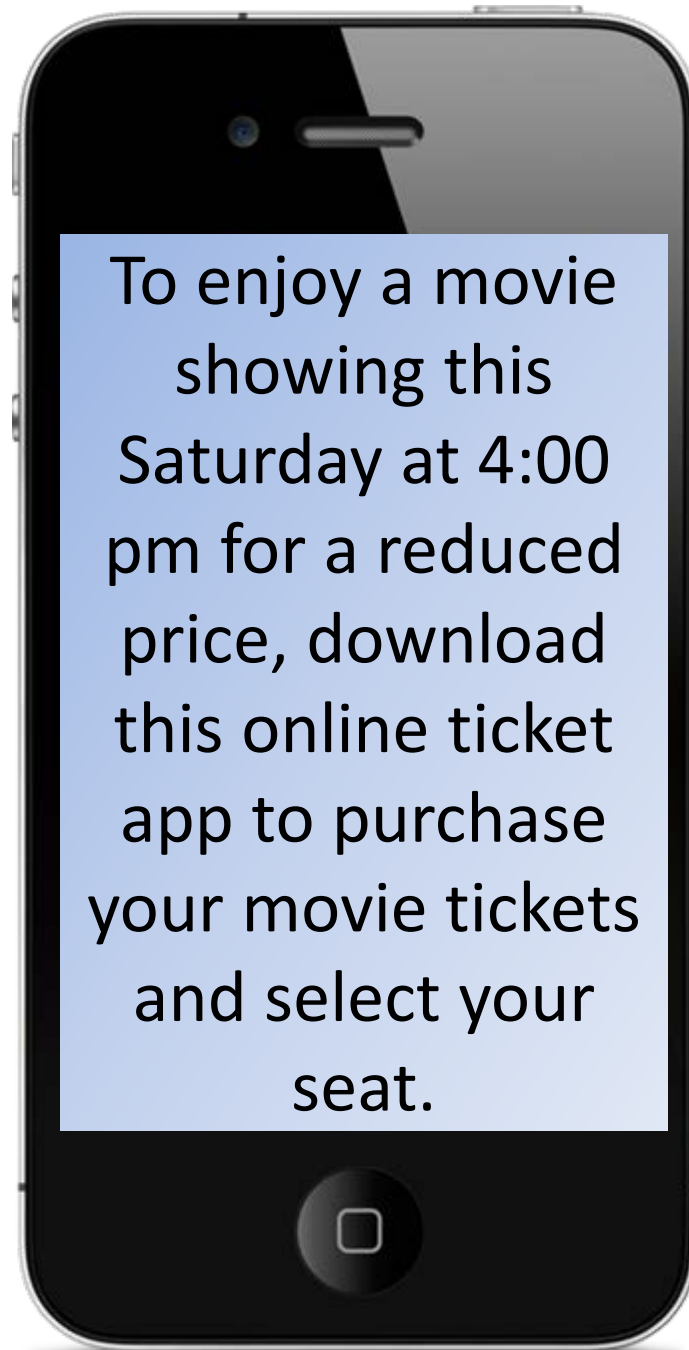


Field Experiment

- Large, randomized field experiment
 - Text messages promoting movie tickets
 - Users had not previously purchased mobile tickets
 - Large city in China
 - Single movie promoted
 - Sent to 12,265 mobiles



SMS Message

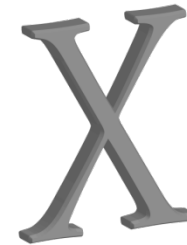


Variables

- Dependent
 - Mobile targeting effectiveness: ticket purchase via **new app**

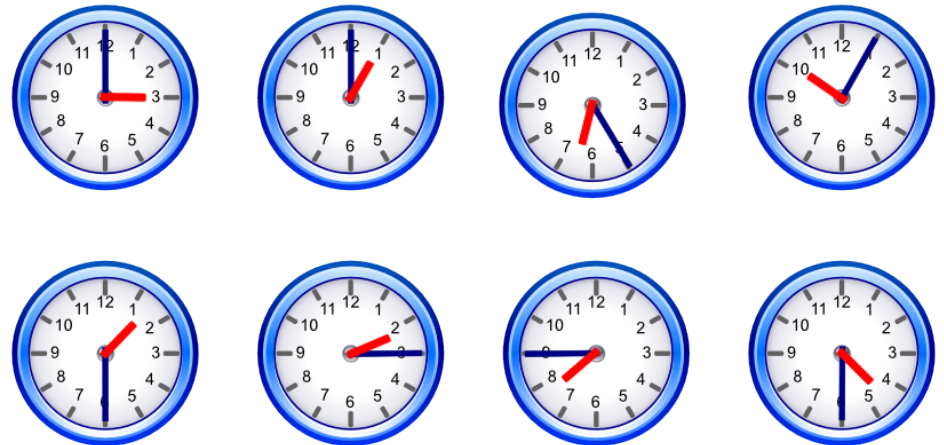


- Independent
 - Temporal targeting
 - Geo-targeting



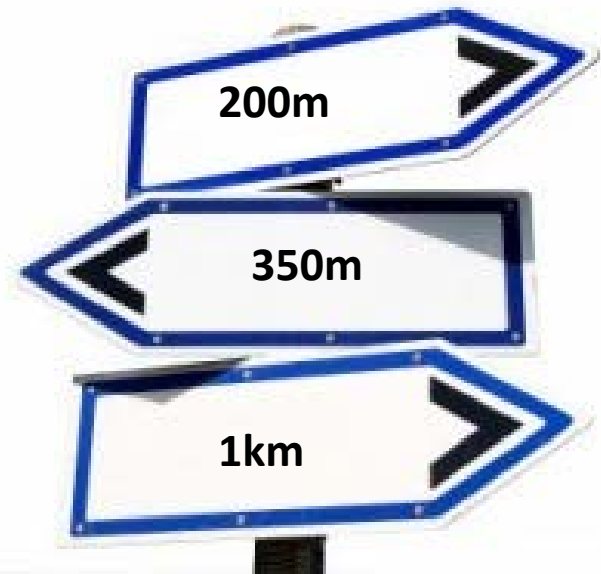
Defining Temporal Targeting

- Messages sent at 2 pm
 - 2 hours (Sat.), 26 hours (Fri.), 50 hours (Thurs.) before movie
 - Movie time: 4 pm, Saturday

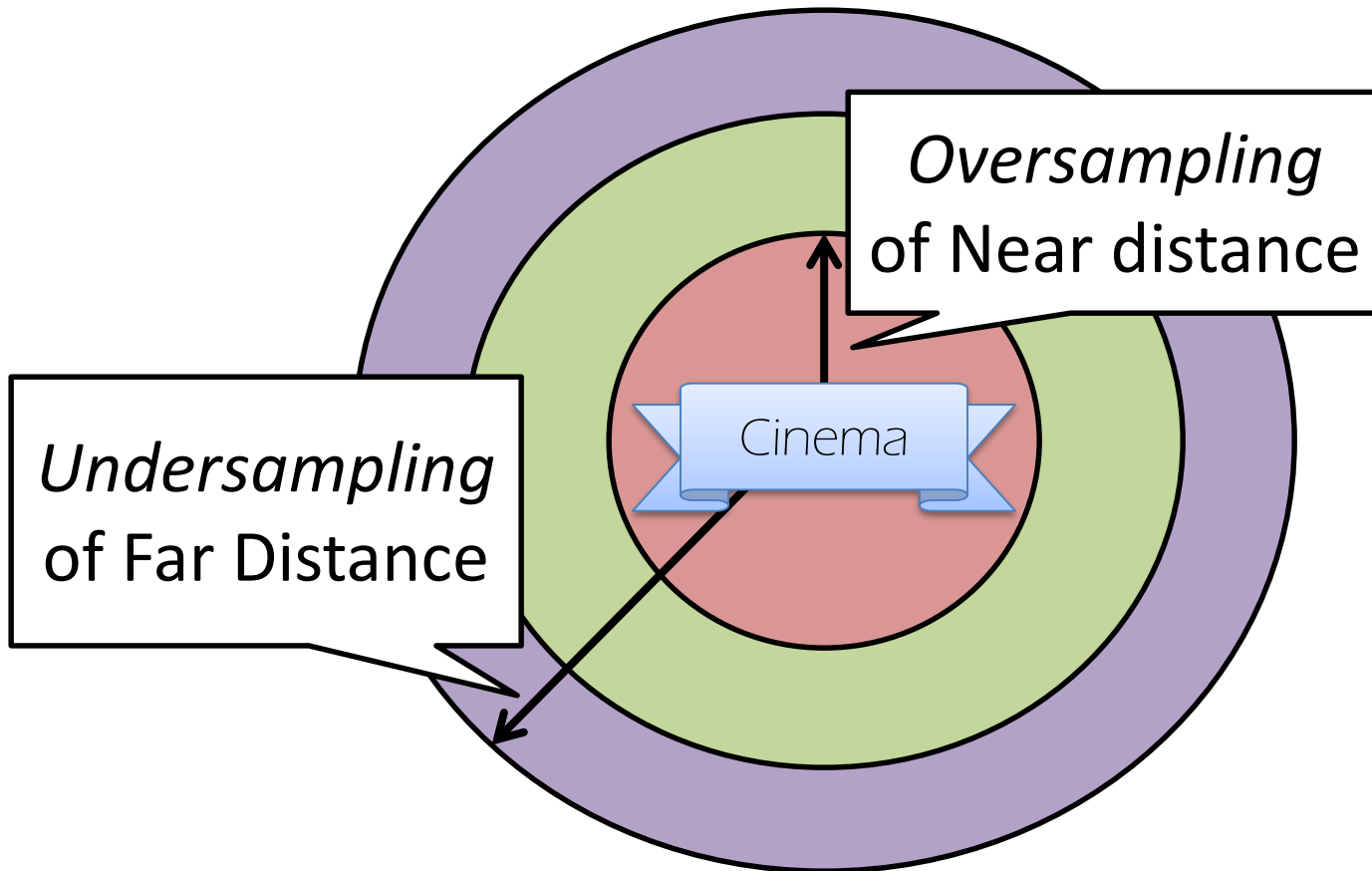


Defining Geo-Targeting

- Messages sent to mobiles located at
 - **Near** distances: $< 200 \text{ meters}$ (from the movie theater)
 - **Medium** distances: $200 \text{ meters} < x < 500 \text{ meters}$
 - **Far** distances: $500 \text{ meters} < x < 2\text{km}$



Random Sampling by Location



Control Variables

- Theater (A, B, C, D)
- Rate plan types
- MOU (minutes used monthly)
- ARPU (monthly bill)
- SMS (amount of text messages sent and received)
- Traffic (amount of data usage)



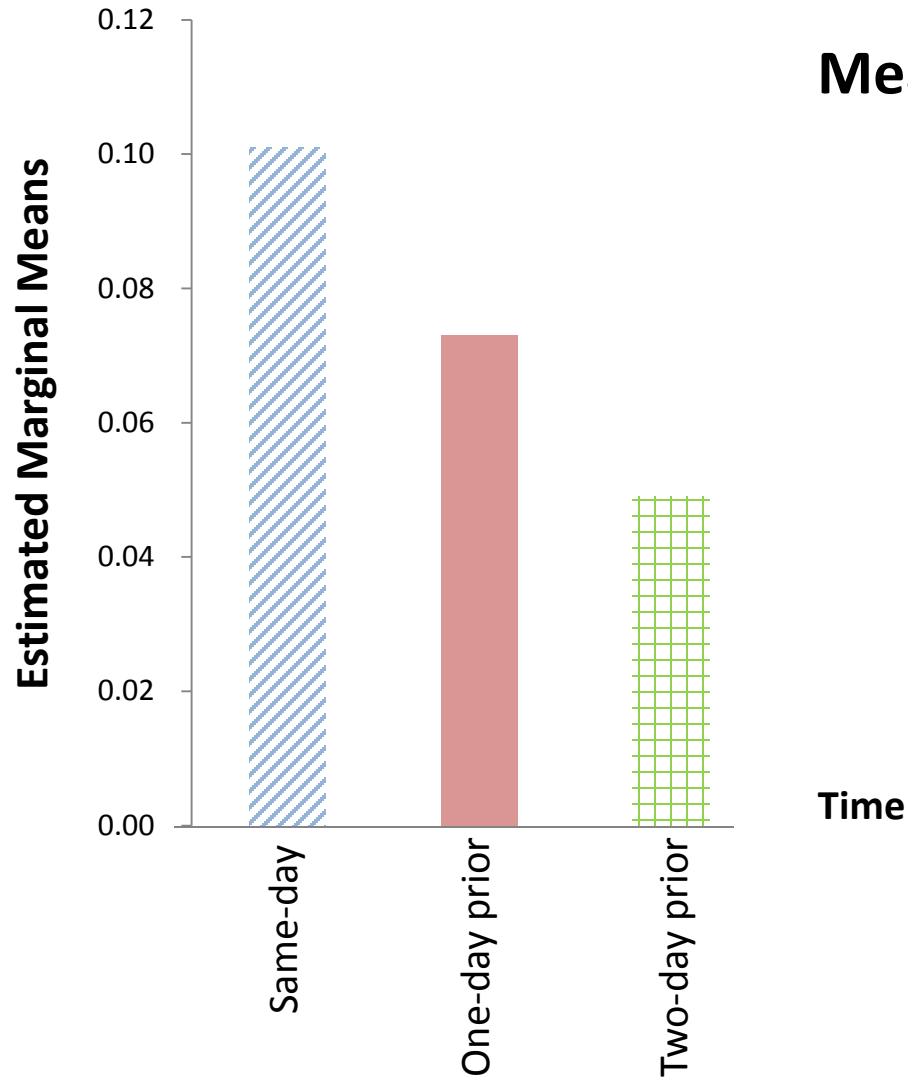
Response Rate

- 901 of 12,265 users downloaded app and bought tickets
= 7.35%



- Mobile click rates in Asia:
= 0.42%

Evidence: Temporal Targeting



Mean purchase for same-day messages:

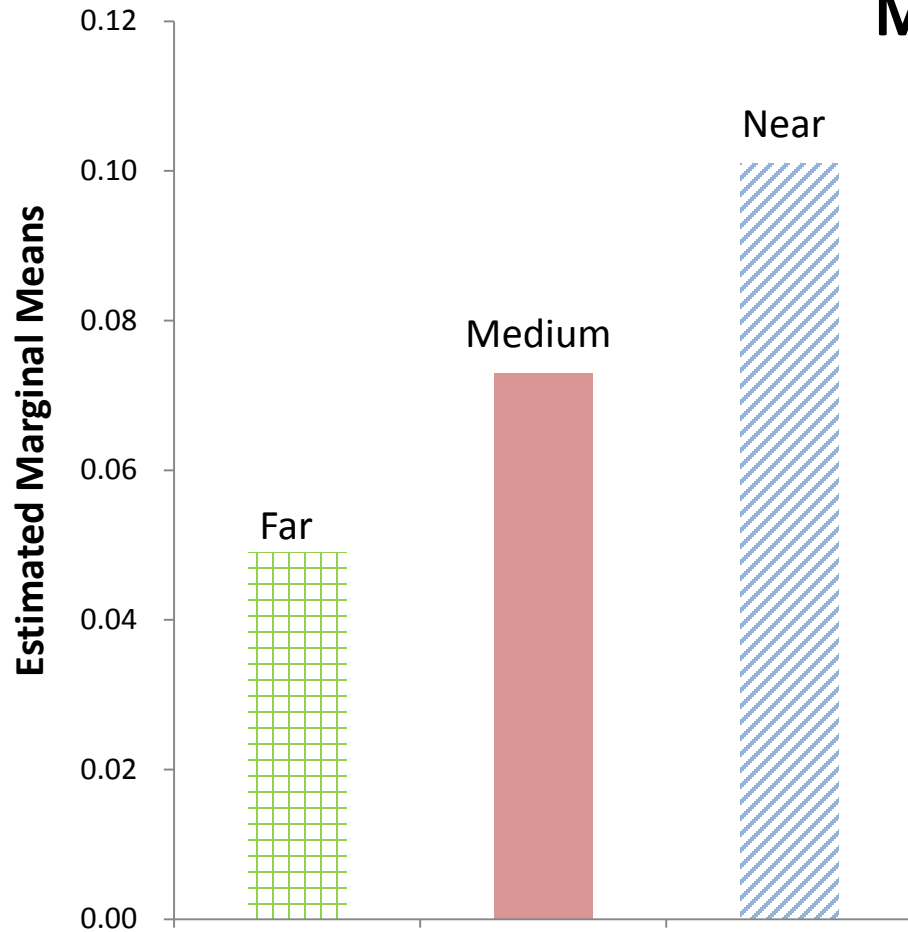
- Higher than one-day prior

$$\chi^2 = 9.53, p < .01$$

- Higher than two-day prior

$$\chi^2 = 14.68, p < .01$$

Evidence: Geo-Targeting



Mean purchase for proximal distances:

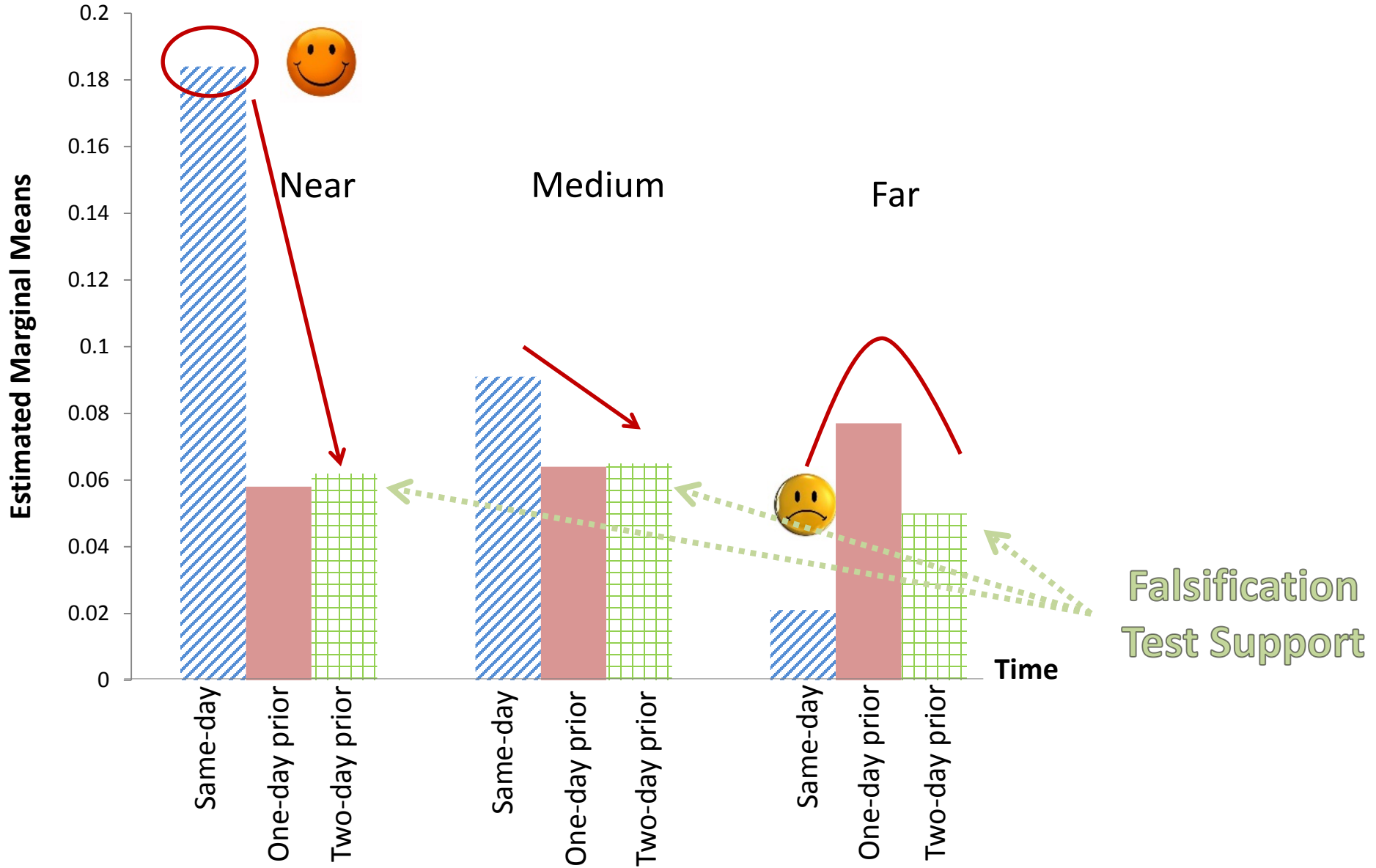
- Higher than moderate distances

$$\chi^2 = 9.20, p < .01$$

- Higher than far distances

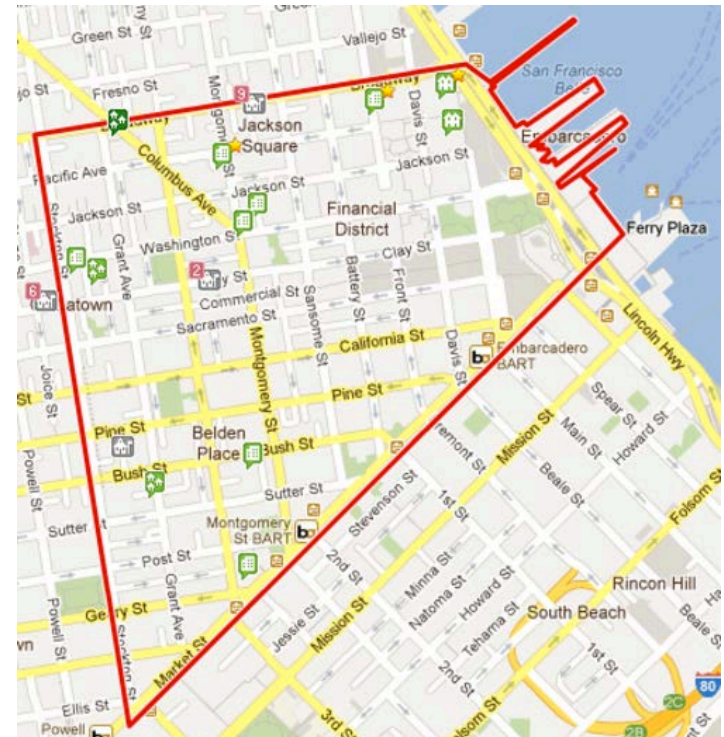
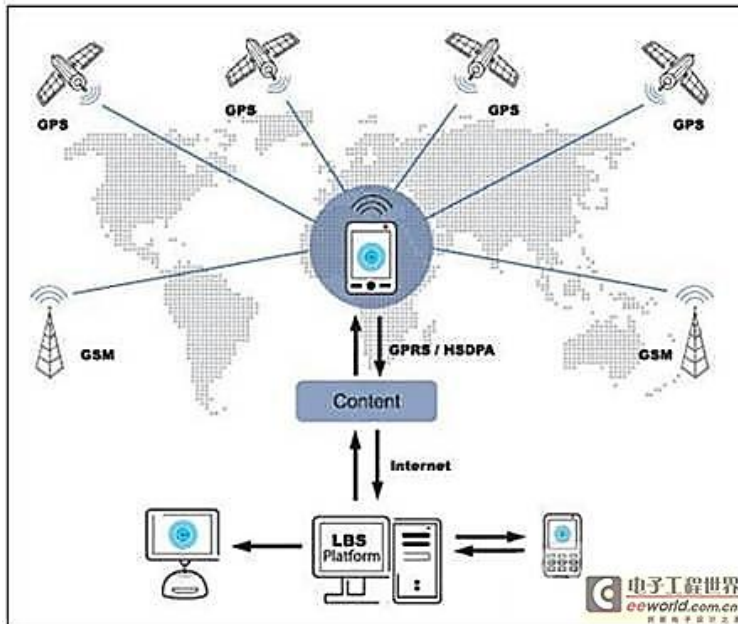
$$\chi^2 = 18.33, p < .01$$

Geo- and Temporal Targeting Combined



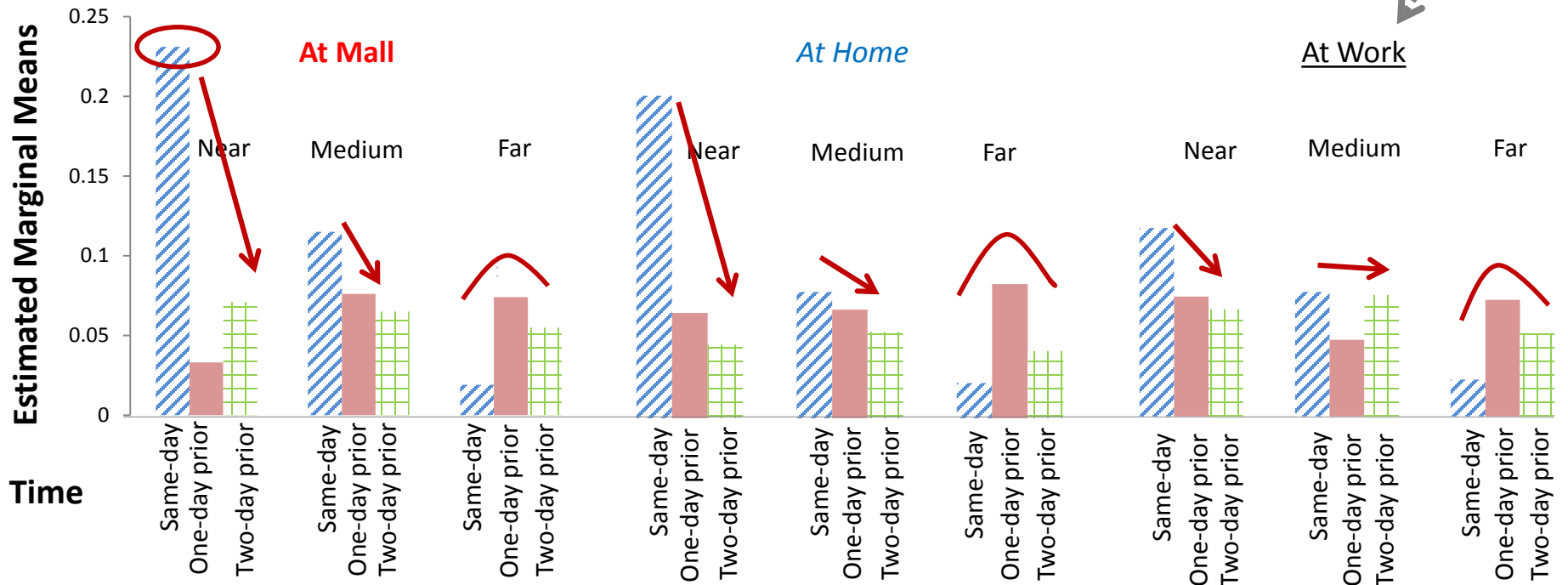
Additional Results: Customer Scenarios

- Messages sent to mobiles located in
 - Residential districts
 - Shopping districts
 - Financial districts



Distance x Time x Customer Scenario

Falsification
Test Support



Geo-Targeting on same day is most effective for shoppers vs. others ($\chi^2=5.12$ & $19.07, p = .01$)

Geo-Targeting's effect diminishes over time

U-shape for far distances is robust across segments

Geo- and Temporal Targeting Takeaway

- Mobile targeting by location and time



- Customer context matters



Xueming.Luo@temple.edu



FOX | GLOBAL CENTER
FOR BIG DATA IN
MOBILE ANALYTICS