The **I**ntraindividual **S**tudy of **A**ging, **H**ealth, & **I**nterpersonal **B**ehavior
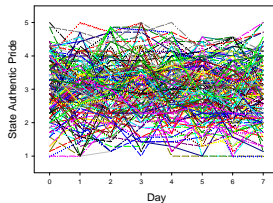
Using Smartphones to Understand Social Behavior & Emotions

PENNSTATE

What makes you act differently in some social interactions than others?

Dominant

Cold/Distant — Warm/Friendly

Submissive

Activated
Unpleasant — Pleasant
Sleepy
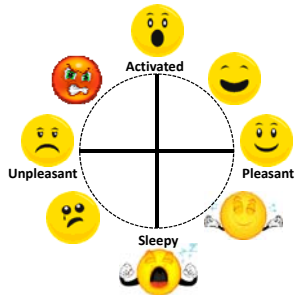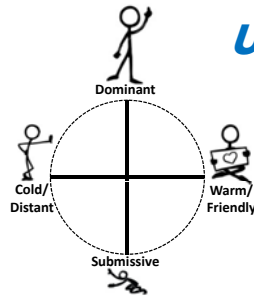
What makes you feel better on some days than others?

Is it better for your health if your feelings & actions are very stable and predictable or if they are very dynamic and variable over time?

State Authentic Pride — Day

What people rate about each social interaction →

What people rate about each day

partner, interaction, Partner's, dominance, affiliation, Affective, Utility...

Stress, Satisfaction, time, Sleep...

iSAHIB

Learn more at http://isahib.weebly.com

Science

- We seek to understand **individual patterns of thoughts, feelings, and behavior** that occur during social interactions and across days. Patterns might involve:
  - acting unusually quarrelsome or dominant in certain types of interactions (e.g., with family members) but not others,
  - feeling consistently sad or rapidly alternating between pleasant and unpleasant feelings throughout the day, and
  - evaluating yourself or the demands on you differently depending on your use of good health behaviors (e.g., physical activity, nutrition, sleep).
- The iSAHIB study involves 140 adults from 18-89 years old.

Pre-Burst Assessment & Training (3 hrs)

Burst 1 (21 days) Interaction & daily reports — break (4-5 months) — Burst 2 (21 days) Interaction & daily reports — break (4-5 months) — Burst 3 (21 days) Interaction & daily reports

Post-Burst Assessment (30 min)

Technology

- We use **smartphones** like the one shown above to capture people's descriptions of their thoughts, feelings, and actions in almost real-time
  - So far, iSAHIB involves roughly 1.4 million data points (and counting!) from over 40,000 interaction reports and 5,400 person•days of data ($\approx$ 15 years of daily life)
  - **Ask to try out our custom app on one of the phones!**

Interaction Reports — Time of Day (Military Time)
Morning   Noon   Evening
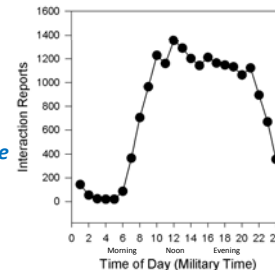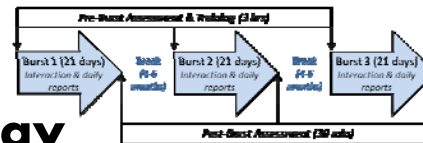
Engineering

- Verizon Wireless infrastructure (e.g., servers, cell towers) allows us to **capture intensive data remotely and in near real-time**
- Future applications will use phones to **monitor health patterns and deliver interventions** when people exhibit warning signs for poor mental or physical health.

Mathematics

- Used to **describe and compare different people's patterns** of thoughts, feelings and actions (we call this process "modeling")
- Used to **predict future** thoughts, feelings, and actions based on a set of variables

$$Stress_{ti} = \beta_{00} + \beta_{01}(Partner\ Warmth) + \beta_{02}(Partner\ Dominance) + r_{ti}$$
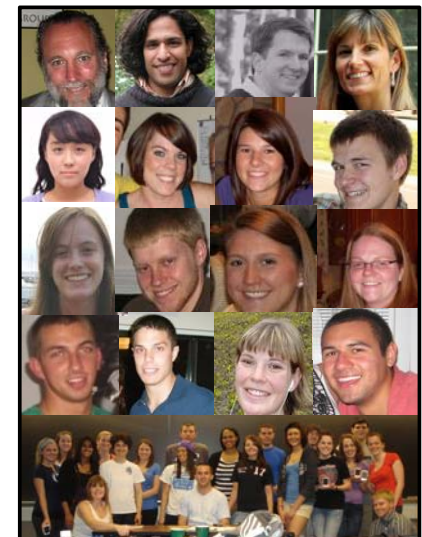$$\beta_{00} = \gamma_{00} + \gamma_{01}(Extraversion) + \gamma_{02}(Agreeableness) + u_{0i}$$
$$\beta_{01} = \gamma_{10} + u_{1i}$$
$$\beta_{02} = \gamma_{20} + u_{2i}$$

Our Team

If you have a smartphone, scan this QR code to go to the iSAHIB website