

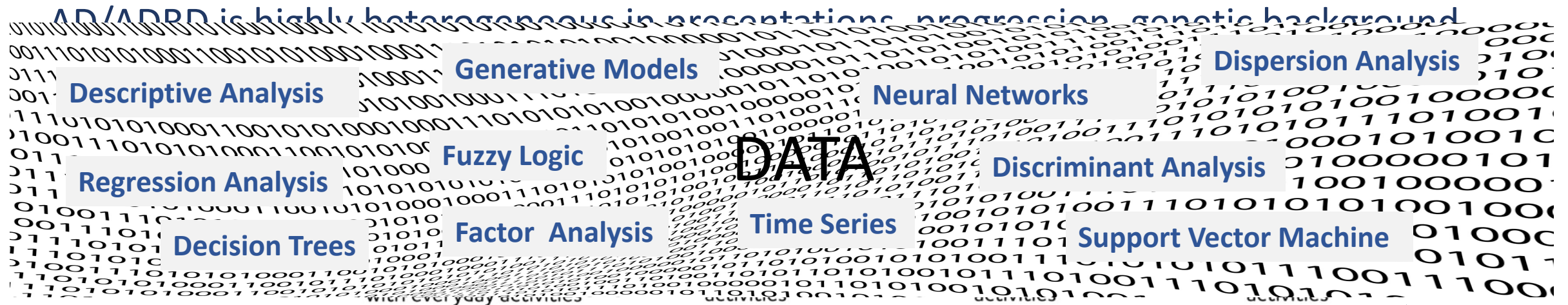
Session VI: Unlocking Innovation to Aid Detection, Diagnosis, and Monitoring

Panel 1: Development and Use of Digital Tools to Assess Human Health

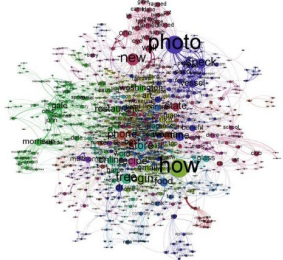
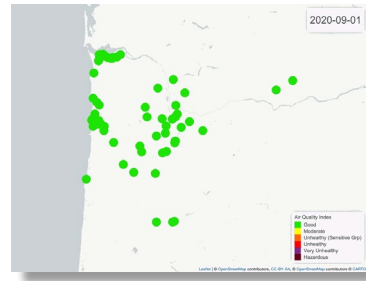
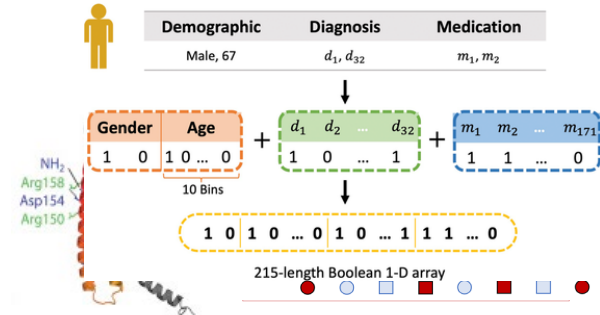
Jeffrey Kaye, MD

Oregon Center for Aging & Technology (ORCATECH)

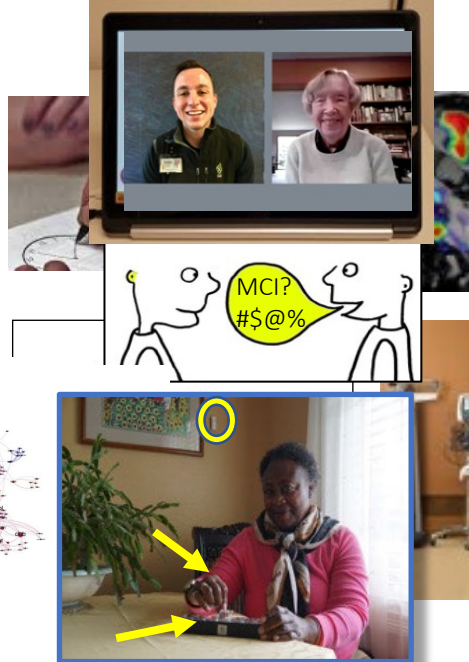
Layton Aging & Alzheimer's Disease Center



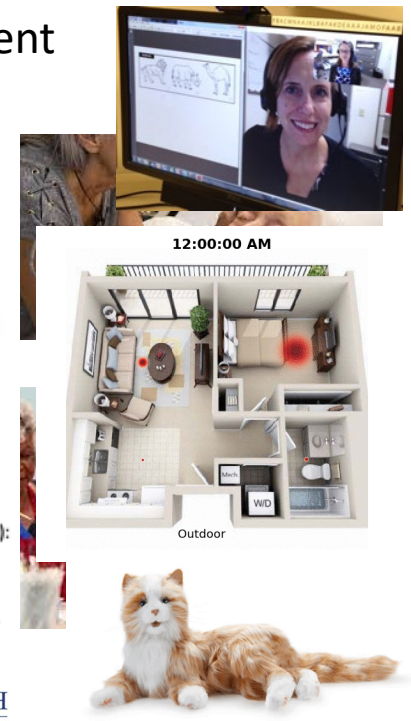
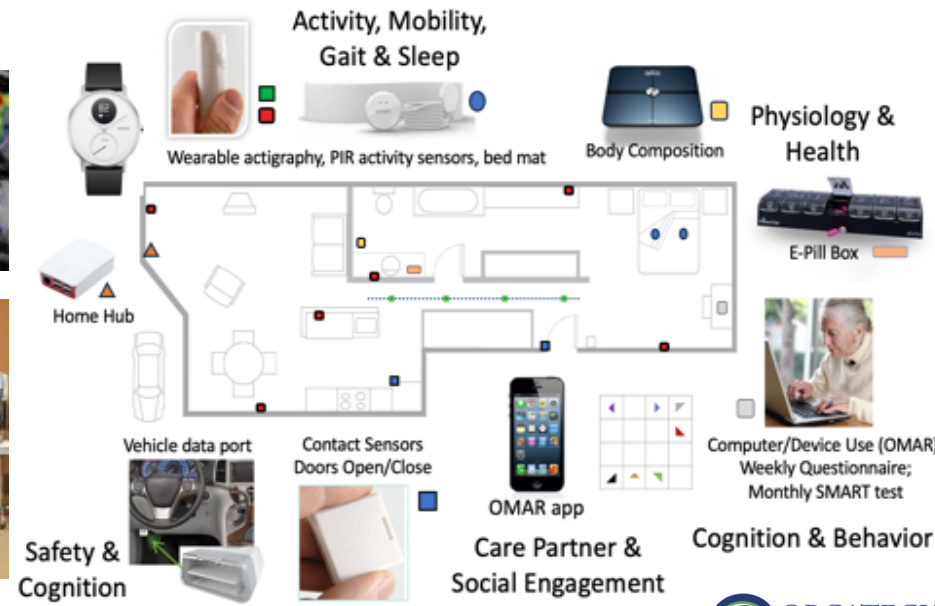
Prediction



Diagnosis



Treatment - Management



No Meaningful Treatments →

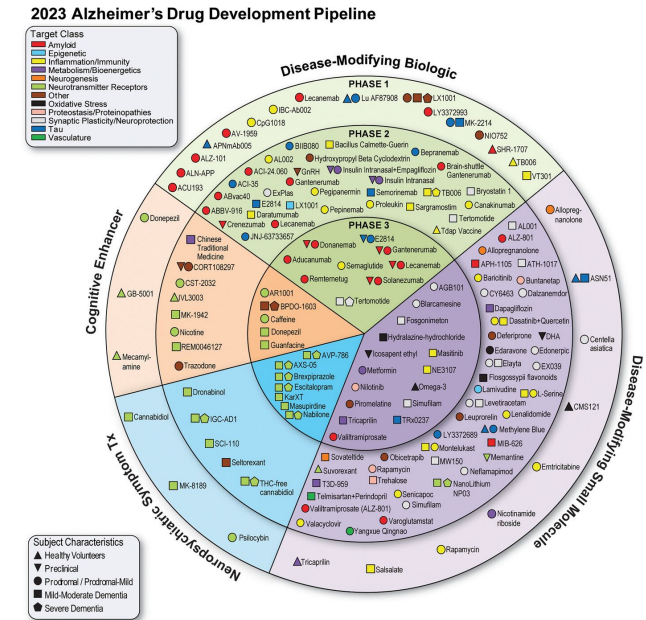
ESTABLISHING MORE MEANINGFUL TREATMENTS - #1 PRIORITY

No shortage of treatments to test –

The greatest contribution digital tools and methods offer is achieving more meaningful treatments sooner.

DIGITAL TOOLS:

- Accelerate drug development through reducing sample sizes, development time
- Generate inherently meaningful outcomes - functional measures derived from everyday activity assessments
- Enable designs that are inclusive, culturally relevant & sensitive
- Better data - take into account the context & environment over time - 'Exposome' or 'Personal Cloud' writ large.



Cummings J, et al. *Alzheimers Dement* (N Y). 2023

187 Phase 1-3 clinical trials assessing
141 unique treatments for AD

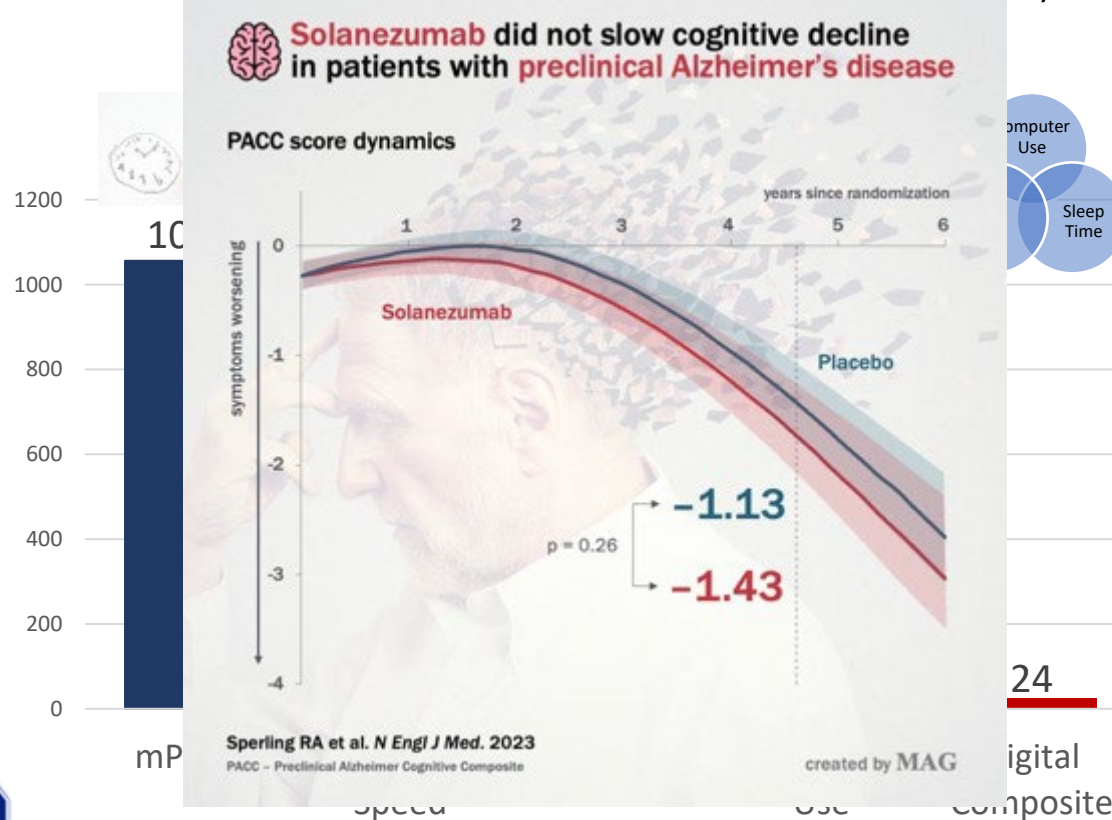
Plus: cognitive training, cognitive stimulation, cognitive rehabilitation, brain stimulation (DBS, rTBS, iTBS, etc.), physical activity, nutrition, etc.

The Value of Continuous Digital Multidomain Data Assessment

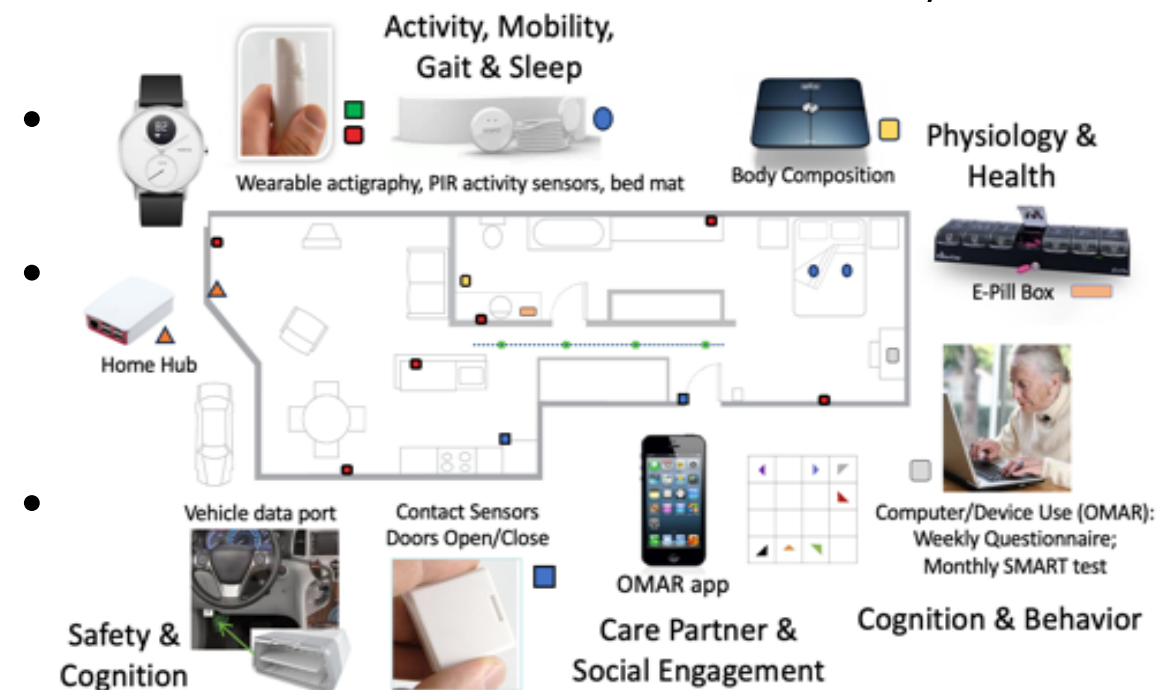
- Accelerate drug development through reducing sample sizes, development time

- Generate inherently meaningful outcomes - functional measures derived from everyday activity assessments

Sample Sizes in 2° Dementia Prevention Trial by



- Reduces required sample size and/or



A Culturally Relevant Multi-modal Brain Health Program - SHARP

Sharing History through Active Reminiscence and Photo-imagery

- Enable designs that are inclusive, culturally relevant & sensitive

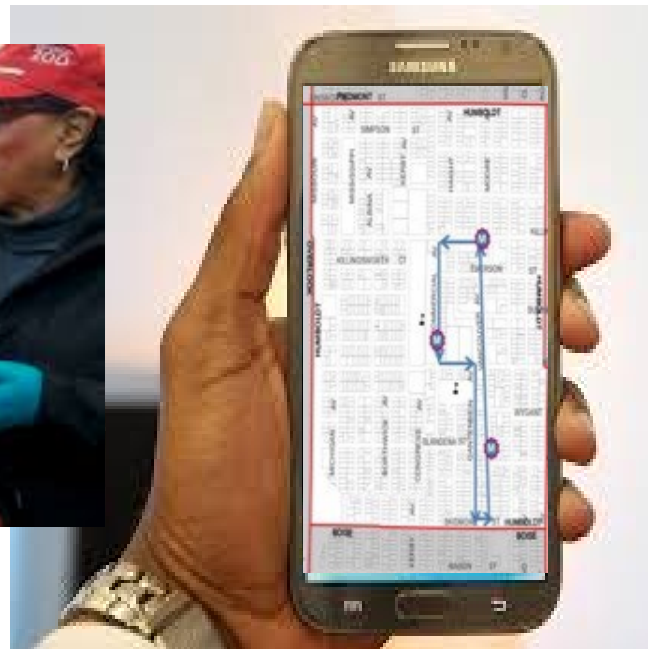
PI: Raina Croff, PhD

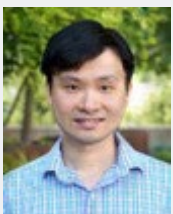
NCT05658328; P30AG066518, P30AG024978

Croff R, et al. The Gerontologist, 2019; 2024 in revision



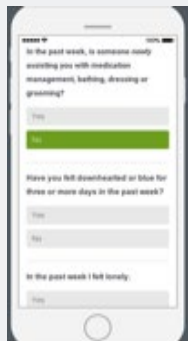
M	T	W	Th	F
				
				
Group Walking + Reminiscence 45 minutes	Health Education Session 30 minutes	Group Walking + Reminiscence 45 minutes	Memory Session 30 minutes	Group Walking + Reminiscence 45 minutes





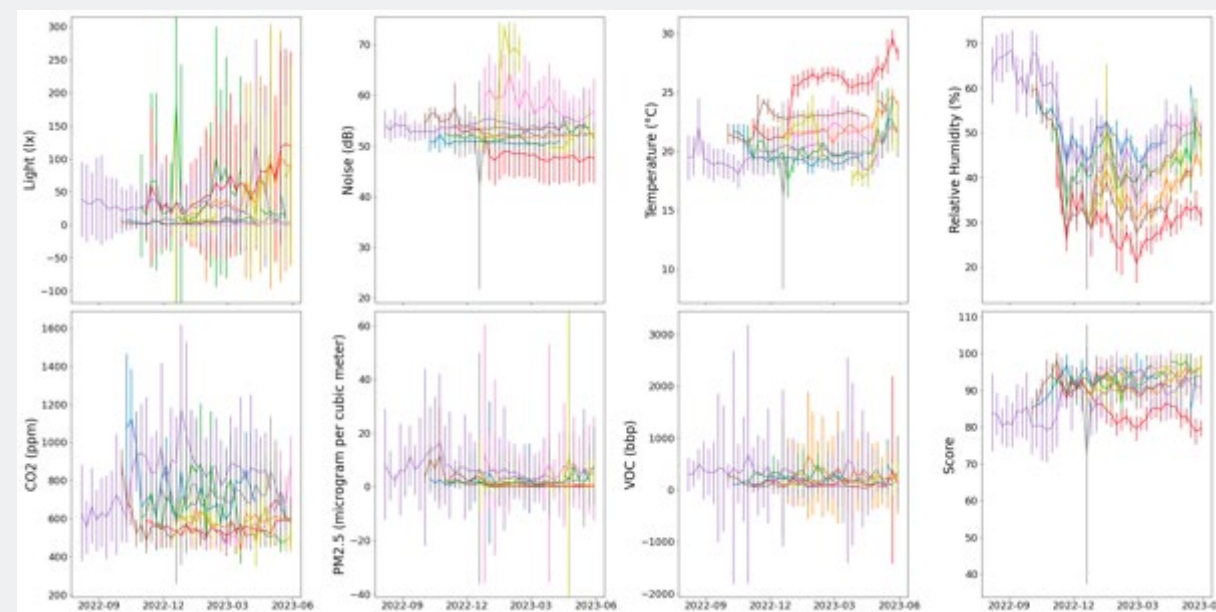
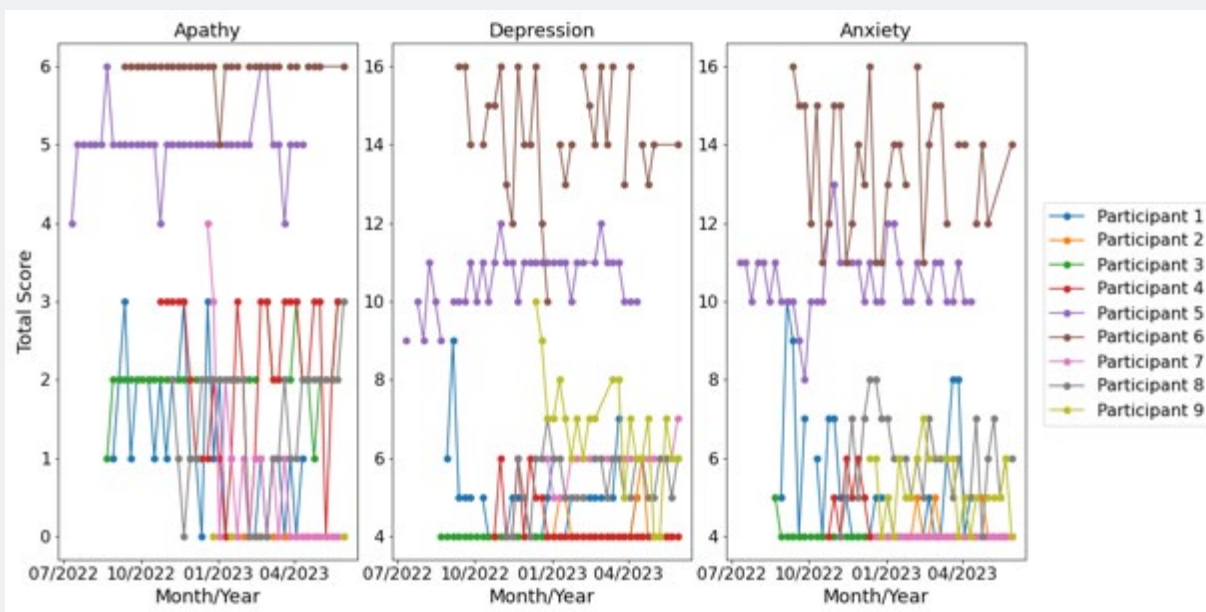
Wan-Tai (Michael) AuYeung, PhD

High Dimensional Longitudinal Assessment of Ambient Home Environments and Their Association with Behaviors of People with Cognitive Decline



- Better data – need to take into account context & environment

- ❖ Light
- ❖ Noise
- ❖ Temperature
- ❖ Humidity
- ❖ CO2
- ❖ PM2.5
- ❖ VOC



- ❖ Withdrawal-Apathy-Vigor (WAV) subscale from the 30-item Geriatric Depression Scale (GDS-30)
- ❖ Depression and Anxiety were assessed using the Depression and Anxiety, 4-item subscales from the 29-item Patient-Reported Outcomes Measurement Information System (PROMIS-29)

AuYeung, et al. AAIC, 2023



Thank You!