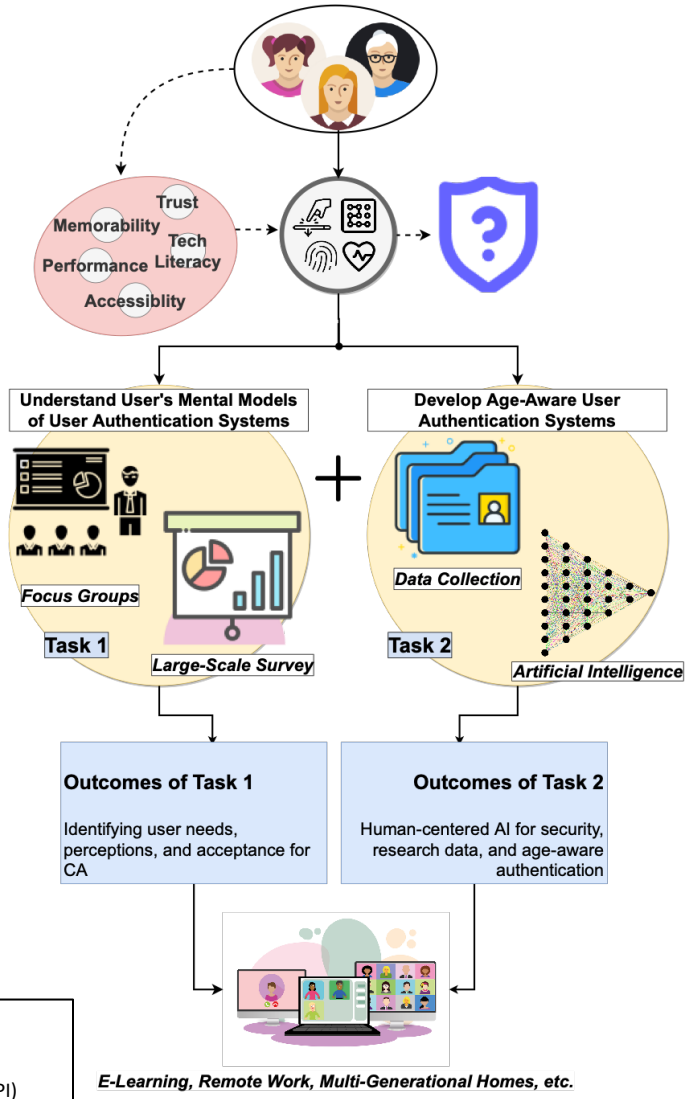
Toward Age-Aware Continuous Authentication on Personal Computing Devices

Challenge:

- A person's age impacts the recognition of security and privacy risks
- User authentication systems (UAS) are an initial security checkpoint when accessing a personal computing device to ensure authorized device/data access
- UAS rely on the user to directly initiate interaction, making these systems inaccessible and impractical for some

Solution:

- In continuous authentication (CA), the device observes the user's multimodal behaviors *passively* as input for authentication.
- Research Objective*:* Design and evaluate user-centric age-aware CA models for personal devices
  1. Establish an understanding of users' mental models of CA
  2. Create a conceptual model of user expectations and needs concerning CA
  3. Collect data from children and adult users for CA
  4. Train and evaluate machine learning models for age-aware CA



Scientific Impact:

- Advances understanding of users' mental models for usable privacy and security.
- Enables end users to create accurate mental models of UAS' contexts and states.
- Informs future research on resource requirements for low-resource, on-device UAS.
- Advances technical capabilities of multimodal ubiquitous computing systems.

Broader Impact/Participation:

- Develops interactive usable privacy and security experiences from a user-centered perspective with age-appropriate transparency.
- Knowledge and training in Artificial Intelligence, Computer Science, Cybersecurity, and Human-Centered Computing for graduate and REU students.
- Provides course-related material for three existing courses, *Mobile Biometrics* (USF), *Affective Computing* (USF), and *Natural User Interfaces* (UF).
- Publicly available software and data for the broader research community.

Collaborative Research: SaTC: CORE: Medium: Toward Age-Aware Continuous Authentication on Personal Computing Devices

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