

# Smart Home Bystanders: Further Complexifying a Complex Context

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# Bystanders as a Noncanonical Data Subject

- IoT collects data on an environment
- Privacy controls (if any) are designed for end users
- But targets and bystanders  $\neq$  end users
  - different knowledge
  - different expectations
  - different preferences



# Smart Homes as a Complex Context

- What privacy norms are in play?
  - home?
  - commercial?
  - Internet?
  - ...?
- Multiple contexts within the home
- Multiple residents/users, plus bystanders and targets



# Big Picture: Research Agenda

- Case studies of likely bystanders to or targets of smart home devices
  - domestic employees: nannies, elder caregivers, occasional cleaning/maintenance (parallel studies in U.S. and Europe!)
  - residents of smart housing: vacation rentals, smart dorms, new developments
  - groups that meet in each other's houses
- General population studies
- Smart home product developers



# Why Study Domestic Employees?

- Sometimes targets, sometimes bystanders
- Interaction and accountability
- Highlighting effects of power dynamics
- And...



# Can We Make This More Complex, Please?

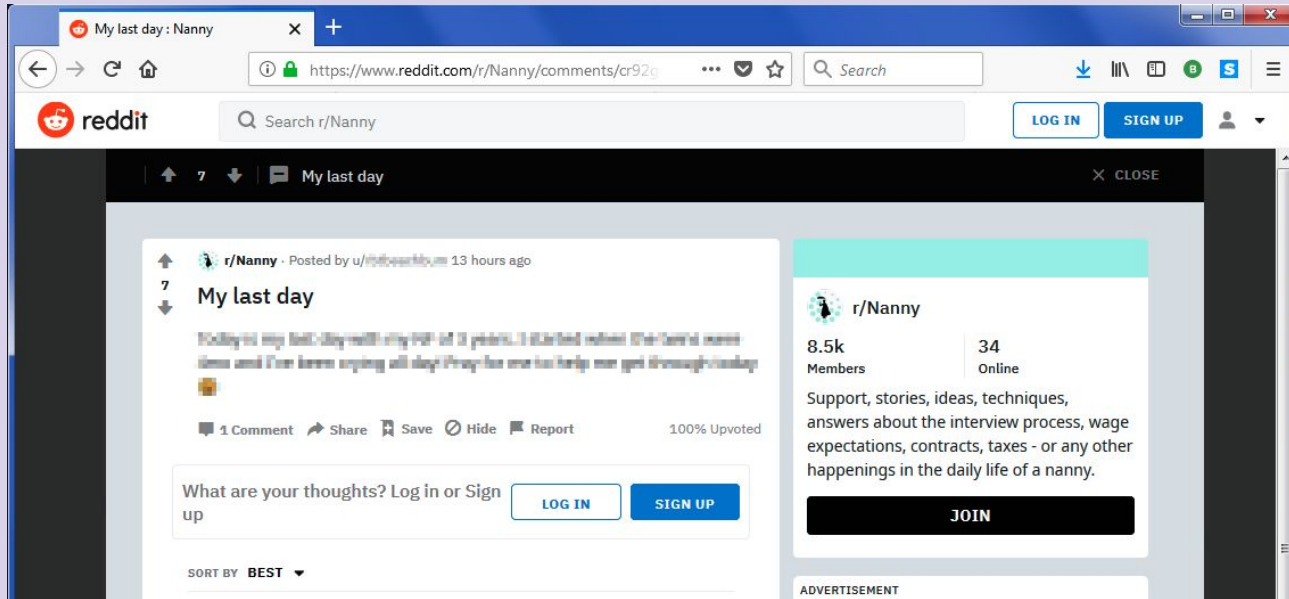
- Home context
  - controlled by householder
  - home/family-based privacy norms?
- Workplace context
  - employer-employee relationship
  - workplace-based privacy norms?
- Care context
  - close relationships, intimate tasks
  - care-based privacy norms?



# Case Study #1: Nannies and Parents

- Methods: forum analysis, interviews, surveys (two-side)
- Research questions:
  - What are nannies' experiences with smart home devices, and their privacy attitudes, expectations, and concerns about them?
  - Do potentially different framings of the context affect each party's expectations, attitudes, and choices about data collection and sharing?
  - How do parents' and nannies' attitudes and choices about smart home data collection reflect, reinforce, or change power dynamics?
  - How are privacy-related conflicts negotiated?
  - What are the potential points of intervention?

# Very Preliminary Findings: The Nannies of Reddit



- Method: Read and take notes (one analyst)





# Cameras: Expectations, Opinions, Preferences, and Choices

- Recognized as a (semi?) common situation
  - different norms and expectations in U.S. vs. elsewhere
  - having cameras; communicating about cameras
- Expectations take into account conflicting contextual norms
  - professional relationships vs. control at home
- Choices based on opinions vs. comfort
  - cameras as disrespectful vs. reasonable/beneficial
  - comfort with being observed



# Parameters of Acceptability: Recipients

## Expected/Acceptable Collection

- Only Mom Boss views video
- Only parents view data
- Data stays on-device

## (Potential) Privacy Violation

- Dad Boss views video
- Parents show data to other people
- Data is sent/stored off-device



# Parameters of Acceptability: Data Subjects, Attributes

## Expected/Acceptable Collection

- Monitors common areas, children's bedrooms, outside
- Video collected
- Monitors nanny with children

## (Potential) Privacy Violation

- Monitors bathrooms\*\*
- Audio collected\*
- Monitors nanny by themselves (at naptime, etc.)



# Parameters of Acceptability: Transmission Principles > Disclosure

## Expected/Acceptable Collection

- Nanny knows there are cameras/monitors
- Nanny knows where all cameras/monitors are

## (Potential) Privacy Violation

- Nanny doesn't know about cameras/monitoring\*\*
- Nanny doesn't know where cameras/monitors are\*\*



# Parameters of Acceptability: Transmission Principles > Purposes

## Expected/Acceptable Collection

- Nanny can use (or has a separate baby monitor)
- Parents only use to check for abuse/neglect
- Parents check occasionally
- Passive observation

## (Potential) Privacy Violation

- Nanny is monitored but can't monitor\*
- Parents micromanage based on observations\*
- Parents continually watch/listen to live feed\*
- Parents give orders to nanny through monitor



# Parameters of Acceptability: Transmission Principles > Confidentiality

## Expected/Acceptable Collection

- Data is erased regularly
- Data is kept secure/transmitted securely

## (Potential) Privacy Violation

- Data is stored indefinitely
- Poor data security



# Cameras and Power Dynamics

- Part of discussions of employer-employee relationships
  - communication, trust, a right to determine work conditions
- Included in advice from more experienced nannies
  - contract stipulations; demanding respect
  - explicit discussion of larger social dynamics
- Prescriptive norms vs. realistic expectations

# Final Questions (for You)

- How (else) can CI help us untangle all these complexities?
- What should we focus on to answer questions for CI?