

# Bystanders' Privacy: The Perspectives of Nannies on Smart Home Surveillance

Julia Bernd, Ruba Abu-Salma, and Alisa Frik





# Motivation

- Smart home privacy controls (if any) are **designed for end users** (primary users), but **other people are affected**



# Motivation

- Smart home privacy controls (if any) are **designed for end users** (primary users), but **other people are affected**
    - Targets of data collection (surveillance)
    - Bystanders to data collection
- } “Non–primary users”



# Motivation

- Smart home privacy controls (if any) are **designed for end users** (primary users), but **other people are affected**
    - Targets of data collection (surveillance)
    - Bystanders to data collection
- } “Non-primary users”
- Generally, new IoT technologies have **differential privacy effects** across **socio-economic spectrums**



# Motivation

- Smart home privacy controls (if any) are **designed for end users** (primary users), but **other people are affected**
    - Targets of data collection (surveillance)
    - Bystanders to data collection
- } “Non-primary users”
- Generally, new IoT technologies have **differential privacy effects** across **socio-economic spectrums**

➤ **Goal:** Empower **non-primary users** to have **better control** over IoT data collection/sharing



## Research Goals (Long View)

- Empower **non-primary users** to have **better control** over IoT data collection/sharing
- Understand and mitigate **privacy effects of socio-economic power differentials**



## Case Study

- Case studies of non–primary users in smart homes



## Case Study

- Case studies of non–primary users in smart homes, starting with...
  - Nannies and other **domestic childcare employees**





## Case Study

- Case studies of non–primary users in smart homes, starting with...
  - Nannies and other **domestic childcare employees**

Sometimes targets, sometimes  
bystanders!





# Why Study Domestic Employees?

- Clear example of **non-primary users**
  - Sometimes targets, sometimes bystanders



# Why Study Domestic Employees?

- Clear example of **non-primary users**
  - Sometimes targets, sometimes bystanders
- **Interaction** and accountability



# Why Study Domestic Employees?

- Clear example of **non-primary users**
  - Sometimes targets, sometimes bystanders
- **Interaction** and accountability
- Highlighting effects of **power dynamics**



# Why Study Domestic Employees?

- Clear example of **non-primary users**
  - Sometimes targets, sometimes bystanders
- **Interaction** and accountability
- Highlighting effects of **power dynamics**
- **Complex context** with unclear boundaries
  - Home, workplace, care provision



# Research Questions for Nannies Study

- What are nannies' **experiences** with smart home devices, and their **privacy attitudes, expectations, and concerns** about them?



# Research Questions for Nannies Study

- What are nannies' **experiences** with smart home devices, and their **privacy attitudes, expectations, and concerns** about them?
- How are nannies' and parents' expectations, attitudes, and choices affected by **combining home, work, and care settings** in one?



# Research Questions for Nannies Study

- What are nannies' **experiences** with smart home devices, and their **privacy attitudes, expectations, and concerns** about them?
- How are nannies' and parents' expectations, attitudes, and choices affected by **combining home, work, and care settings** in one?
- How do parents' and nannies' attitudes and choices about smart home data collection **reflect, reinforce, or change power dynamics**?





# Research Questions for Nannies Study

- What are nannies' **experiences** with smart home devices, and their **privacy attitudes, expectations, and concerns** about them?
- How are nannies' and parents' expectations, attitudes, and choices affected by **combining home, work, and care settings** in one?
- 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**?



# Research Questions for Nannies Study

- What are nannies' **experiences** with smart home devices, and their **privacy attitudes, expectations, and concerns** about them?
- How are nannies' and parents' expectations, attitudes, and choices affected by **combining home, work, and care settings** in one?
- 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**?



# Methodology





# Methodology

- **Two-side** study: Semi-structured **qualitative interviews** (in English)
  - Nannies, professional babysitters, and au pairs
  - Parents who employ nannies/babysitters/au pairs



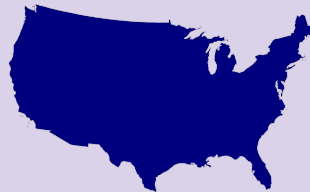
# Methodology

- **Two-side** study: Semi-structured **qualitative interviews** (in English)
  - Nannies, professional babysitters, and au pairs
  - Parents who employ nannies/babysitters/au pairs
- Currently conducting **thematic analysis** of nanny interviews



# Methodology

- **Two-side** study: Semi-structured **qualitative interviews** (in English)
  - Nannies, professional babysitters, and au pairs
  - Parents who employ nannies/babysitters/au pairs
- Currently conducting **thematic analysis** of nanny interviews
- Upcoming: **Comparative study** of the U.S., UK, and Germany





# Recruitment

- Flyers locally in San Francisco and Berkeley
- Facebook groups, fora, email lists
- Crowdsourcing platform Prolific (parents only)
- Snowballing / referrals

# Participants (U.S.)



- Recruited **offline** (Bay Area) and **online** (whole U.S.)

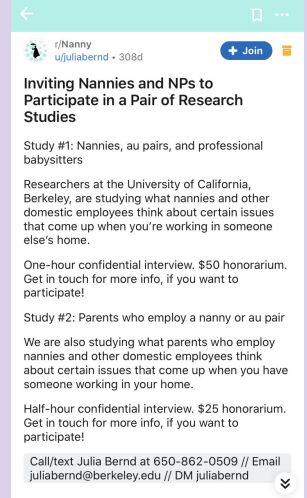




# Participants (U.S.)



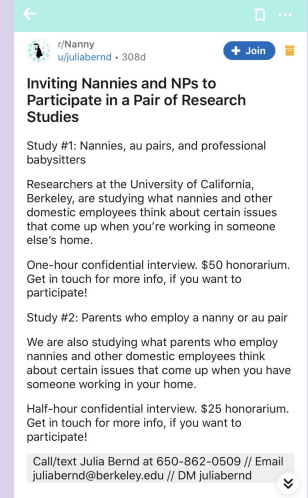
- Recruited **offline** (Bay Area) and **online** (whole U.S.)
- **26 nannies**, professional babysitters, and au pairs
  - 15 nannies
  - 4 nannies/household managers
  - 3 professional babysitters
  - 2 au pairs



# Participants (U.S.)



- Recruited **offline** (Bay Area) and **online** (whole U.S.)
- **26 nannies**, professional babysitters, and au pairs
  - 15 nannies
  - 4 nannies/household managers
  - 3 professional babysitters
  - 2 au pairs
- **16 parents** who employ nannies and own surveillance devices





## Limitations

- Language
- Location: major tech industry centers
- Excluded parents who don't have smart home devices



# Interview Questions

- Experiences with smart home devices
- Interactions with employers about devices
- General expectations, preferences, and concerns
- Legal and technical protections



# Preliminary Findings: Perspectives

- Experiences of three situations:
  - Nannies **targeted by surveillance devices**\*

\* “Surveillance devices” = *marketed for surveillance/monitoring*



# Preliminary Findings: Perspectives

- Experiences of three situations:
  - Nannies **targeted by surveillance devices**\*
  - Nannies as **bystanders to surveillance devices** (with other targets)

\* “Surveillance devices” = marketed for surveillance/monitoring



# Preliminary Findings: Perspectives

- Experiences of three situations:
  - Nannies **targeted by surveillance devices**\*
  - Nannies as **bystanders to surveillance devices** (with other targets)
  - Nannies as **bystanders to other smart home devices**

\* “Surveillance devices” = marketed for surveillance/monitoring



# Expectations and Attitudes

- Most U.S. nannies **expect cameras**

“I realize that, **if I'm working in this profession**, that yeah, someone's gonna want to protect their most important asset.” (N16)





# Expectations and Attitudes

- Most U.S. nannies **expect cameras**
  - But they should be **disclosed!**

“I **don't think it's respectful** to have a camera and hide it.” (N16)



# Expectations and Attitudes

- Most U.S. nannies **expect cameras**
  - But they should be **disclosed!**
- Range of **positive and negative** attitudes



# Expectations and Attitudes

- Most U.S. nannies **expect cameras**
  - But they should be **disclosed!**
- Range of **positive and negative** attitudes
- Privacy attitudes are **situationally dependent**
  - Capturing private activities vs. professional activities

“If they **respect your private life**, it's okay for me if they have cameras in the dining room, in the kitchen.” (N24)



# Expectations and Attitudes

- Most U.S. nannies **expect cameras**
  - But they should be **disclosed!**
- Range of **positive and negative** attitudes
- Privacy attitudes are **situationally dependent**
  - Capturing private activities vs. professional activities
- Cameras can have **benefits** for nannies

“Maybe **if the kids lie** and say that you did something, [...] you can say, ‘Well, **let's see the cameras.**’” (N24)



# Focus on Purposes and Intentions

- Views often **depend on the purpose** of the camera(s)
  - High level: Targeting nanny or for other purposes

“If the cameras were specifically **put in place to watch me**, it would make me **more uncomfortable** than if it was **just [...] security cameras**, [...] or it’s just the monitor for the baby.” (N33)



# Focus on Purposes and Intentions

- Views often **depend on the purpose** of the camera(s)
  - High level: Targeting nanny or for other purposes
  - Nuances: Spot-checks vs. micromanagement

“[If] I knew that they were **watching me throughout the day**, as opposed to just **quickly forwarding through the video** at night to make sure nothing happens, that would make **a huge difference.**” (N33)



# Focus on Purposes and Intentions

- Views often **depend on the purpose** of the camera(s)
  - High level: Targeting nanny or for other purposes
  - Nuances: Spot-checks vs. micromanagement
- **Transparency** about purposes

“I feel like I would want it in [my contract]. Just to be **more clear on what it’s utilized for**, and how often it’s being utilized.” (N37)



# Focus on Purposes and Intentions

- Views often **depend on the purpose** of the camera(s)
  - High level: Targeting nanny or for other purposes
  - Nuances: Spot-checks vs. micromanagement
- **Transparency** about purposes
- Camera use says something about **employer-employee relationships**
  - What are their intentions? Do they trust me?

“I think I would start to [...] **question that they’re trusting me** [...] or honestly if it’s just a matter of them wanting to see what happens in the house during the day.” (N37)





# Cameras and Power Dynamics

- Very **few discussions** about whether cameras are okay
- Few discussions about locations, privacy settings, etc.

“It’s like, **we’re telling you you have cameras** but you have **no other right** to know what else gets done. I’m still **not as comfortable** being forthright and asking, like, ‘Does it record voice, or does it do this, or does it do that?’” (N16)



# Cameras and Power Dynamics

- Very **few discussions** about whether cameras are okay
- Few discussions about locations, privacy settings, etc.
- **It's the parents' decision** because:
  - “It's their house”
  - “It's their kids”
  - “They're the bosses”

“Not only are they **your boss**, [it's] **their house**, they're allowed to do what they want. So, **saying 'No'** [...] Yeah, there're probably going to be consequences for that.” (N33)



## Ongoing and Future Work

- **Complete analysis** of nanny and parent interviews



## Ongoing and Future Work

- Complete analysis of nanny and parent interviews
- Comparative analysis with UK and Germany data



## Ongoing and Future Work

- **Complete analysis** of nanny and parent interviews
- **Comparative analysis** with UK and Germany data
- **Surveys** with nannies and parents



## Ongoing and Future Work

- Complete analysis of nanny and parent interviews
- Comparative analysis with UK and Germany data
- Surveys with nannies and parents
- Other **case studies**



## Ongoing and Future Work

- Complete analysis of nanny and parent interviews
- Comparative analysis with UK and Germany data
- Surveys with nannies and parents
- Other case studies
- Studies with **product developers and designers**



# Implications

- **Conversation guides** for smart home device owners and non-primary users





# Implications

- **Conversation guides** for smart home device owners and non-primary users
- Informational **materials** and **recommendations**



# Implications

- **Conversation guides** for smart home device owners and non-primary users
- Informational **materials** and **recommendations**
- Guidance and trainings for **product developers** and **designers**



# Implications

- **Conversation guides** for smart home device owners and non-primary users
- Informational **materials** and **recommendations**
- Guidance and trainings for **product developers** and **designers**
- Policy recommendations re: **consumer protection regulations**



# Thank you!

...and thanks to the Center for Long-Term Cybersecurity at University of California, Berkeley, and to the U.S. National Security Agency, for supporting this work.

Julia Bernd // [jbernd@icsi.berkeley.edu](mailto:jbernd@icsi.berkeley.edu)





## Conclusions [MAY CUT]

Preliminary findings from the interviews with US-based nannies

- **Expect** cameras and **recognize benefits**
- **Want to be informed** about location, and purpose of use
  - **Lack of disclosure** as a sign of **disrespect**
- Impact of perceptions of **parents' intentions**
- **More concerned** about surveillance **in the private than professional contexts**
- **Power dynamics** forces device acceptance despite concerns