

# Algorithmic Anxiety and Coping Strategies of Airbnb Hosts

Shagun Jhaver, Georgia Institute of Technology

Yoni Karpfen, Airbnb Inc.

Judd Antin, Airbnb Inc.





Montreal, Canada · Homes

Apr 24 – Apr 25

1 guest

Home type

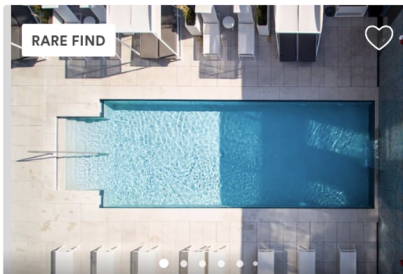
Price

Instant Book

Trip type

Sort by

More filters

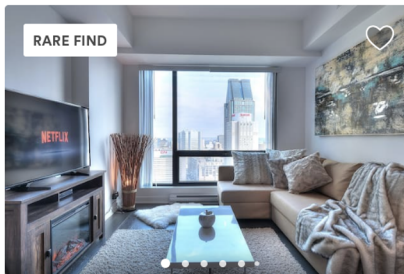


ENTIRE APARTMENT · 2 BEDS

**Beautiful Condo on the 43rd Floor!**

\$114 per night

★★★★★63

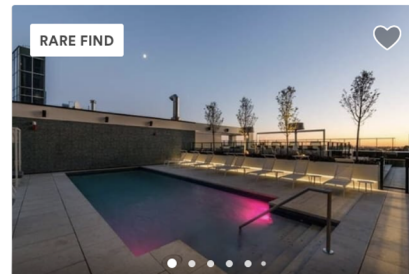


ENTIRE APARTMENT · 1 BED

**High End Condo-Tour des Canadiens-  
Great Location**

\$127 per night

★★★★★17

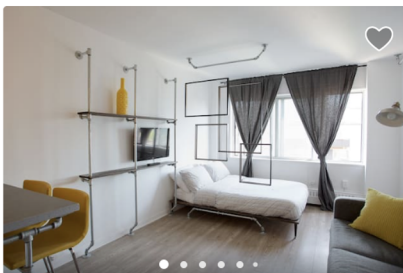


ENTIRE APARTMENT · 1 BED

**Luxury Condo in Tour Des  
Canadiens(Spa & Pool)1209**

\$109 per night

★★★★★12

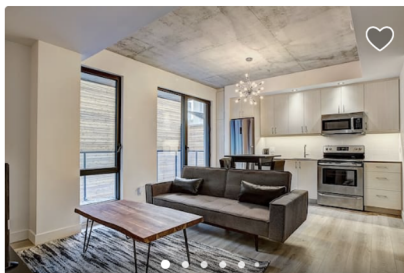


ENTIRE APARTMENT · 1 BED

**Downtown DIY Paradise**

\$87 per night

★★★★★134

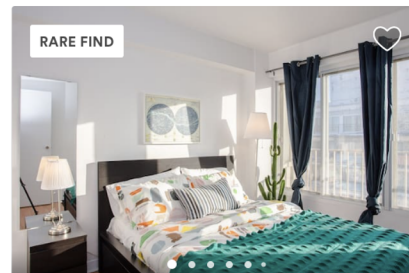


ENTIRE CONDOMINIUM · 1 BED

**★★★★★ Exciting Downtown Montreal  
Loft /w gym**

\$119 per night

★★★★★42 · Superhost

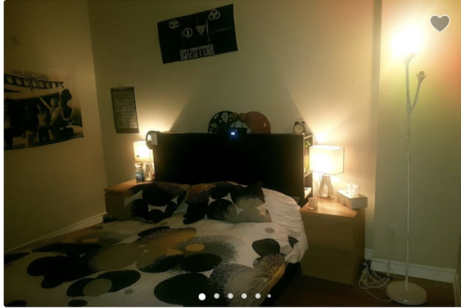


ENTIRE APARTMENT · 2 BEDS

**Sunny 12th floor Suite with Downtown  
View**

\$109 per night · Free cancellation

★★★★★4

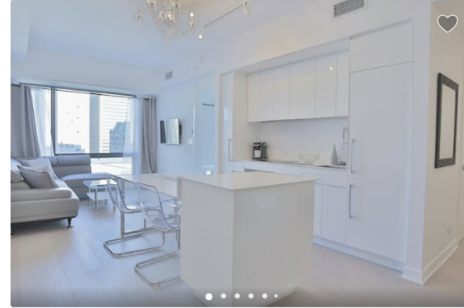


**PRIVATE ROOM · 1 BED**  
**Chambre avec grand lit dans un joli appartement**  
\$65 per night · Free cancellation

**NEW**



**ENTIRE APARTMENT · 2 BEDS**  
**Downtown YUL -Prestige Brand New Condo Bell Centre**  
\$135 per night  
100% Superhost



**ENTIRE APARTMENT · 2 BEDS**  
**Luxurious condo @ Bell Center**  
\$137 per night  
103%



**ENTIRE LOFT · 1 BED**  
**LUXURIOUS LOFT IN DOWNTOWN (Dream Get Away)**  
\$132 per night

**NEW** 1 review



**ENTIRE APARTMENT · 2 BEDS**  
**Amazing View 2 Bdr Downtown Bell Center Parking \$**  
\$128 per night

100% 3



**ENTIRE APARTMENT · 1 BED**  
**A penny for your thoughts**  
\$87 per night

100% 61

1 2 3 ... 6 >

1 – 18 of 93 Rentals

# Search results are driven by opaque algorithms

- No human managers
- Data-driven algorithms evaluate Airbnb listings
- How these algorithms exactly work is not known
  - Opaque by design





# Research Questions

- How do Airbnb hosts feel about their listings being evaluated by semi-transparent algorithms?
- How do hosts' work practices change in response to the way they perceive such algorithms?

# Methods

- Qualitative Study
  - May - August 2017

# Methods

- Qualitative Study
  - May - August 2017
  - 15 semi-structured interviews
    - Current Airbnb hosts
    - Broad age-range, occupations, countries, balancing gender composition

# Methods

- Qualitative Study
  - May - August 2017
  - 15 semi-structured interviews
    - Current Airbnb hosts
    - Broad age-range, occupations, countries, balancing gender composition
  - Interpretive qualitative analysis



# Implications for Airbnb

- Developing an understanding of host perceptions
- Creating content and communications to address hosts' perceptions of algorithms
- Designing feature updates based on hosts' attitudes and behaviors



# Summary of Findings

- Our participants (Airbnb hosts) perceived a double negotiation with guests and with algorithms.
- Perceptions of uncertainty and lack of control complicated the double negotiation, creating anxiety.
- In response, our participants engaged in coping strategies.

# Double Negotiation

# Double Negotiation

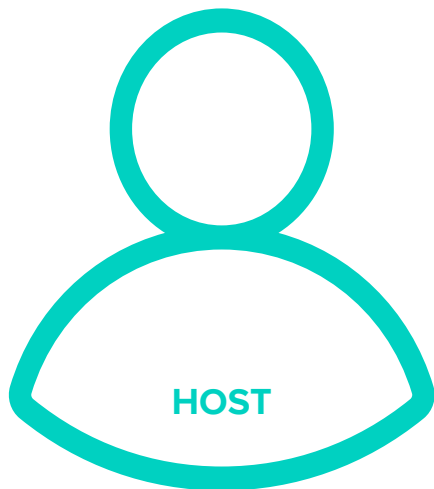
*noun*

The uncertain process of appealing to both the subjective perceptions of humans and the uncompromising logic of opaque algorithms at the same time.

# Double Negotiation

**Attracting guests**

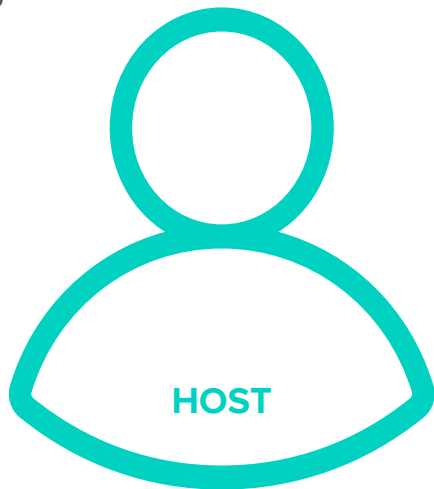
**Interacting with  
algorithms**



# Double Negotiation

## Attracting guests

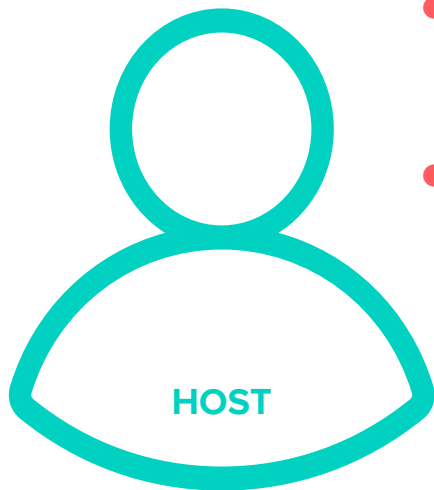
- Guest reviews
- Talking to guests
- Using their own experiences as guests



# Double Negotiation

## Interacting with algorithms

- Awareness of algorithms
- Believing that algorithm ranks listings





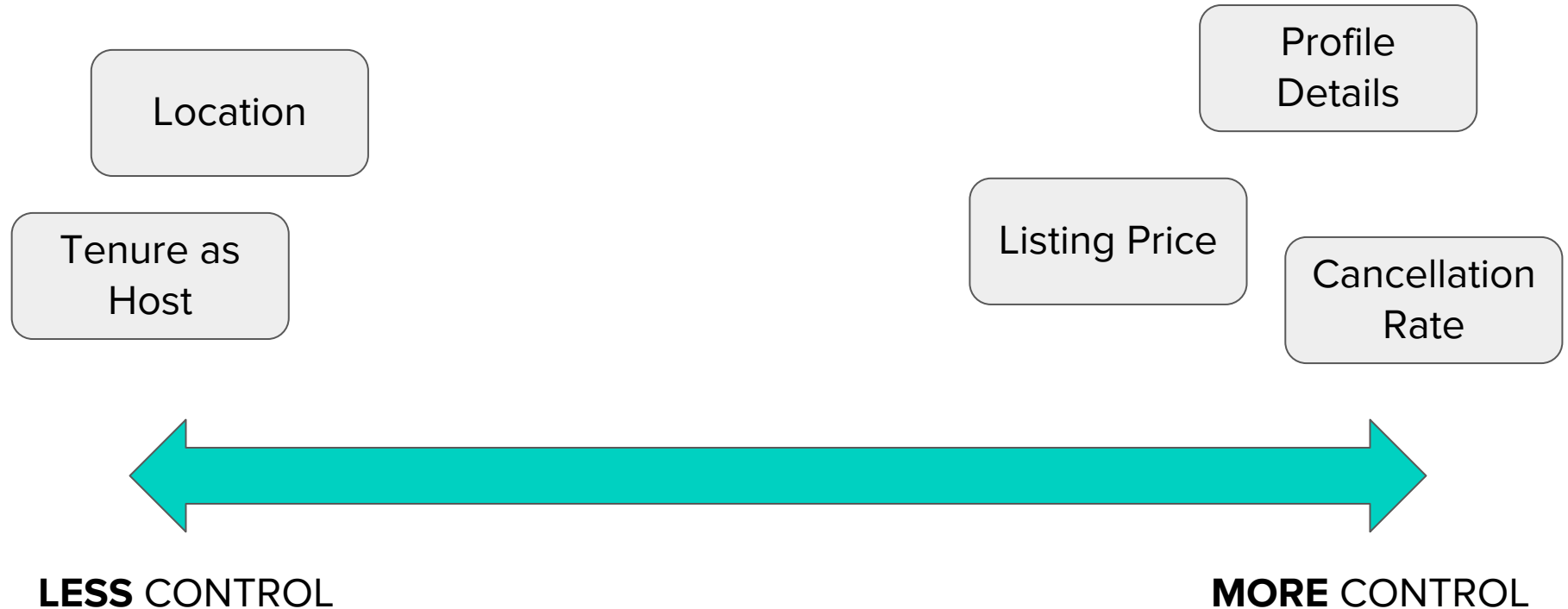
# Double Negotiation

“

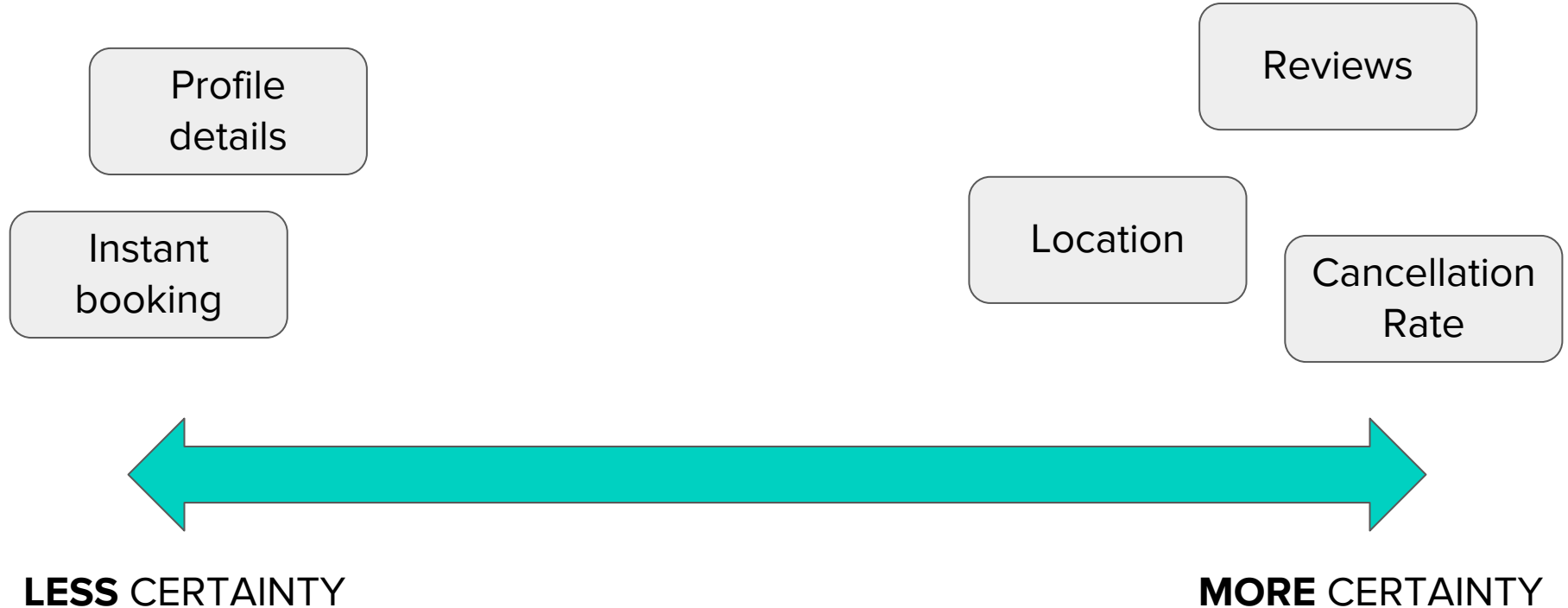
*You could sort through guests as they start putting in requests, but that would affect your rating if you were to say ‘no’ to people all the time. So it’s better to do it in the system – to either incentivize those longer stays or to set the minimum rather than just say ‘no’ to a bunch of people hoping you’ll fish around and get a longer-term one.*

# **Control and Uncertainty in a Double Negotiation**

# Perceived control



# Perceived uncertainty



# Perceived uncertainty

“

*I don't like changing the listing title every day because I might spend half an hour of my time every day, and then maybe it's not worth it. . . I still do it because there's lots of blogs and stuff saying that you need to do it, and I don't want to lose reservations.*

**Anxiety**



# Algorithmic anxiety

- Dealing with appealing to potential guests
  - Shared understanding of social situations

# Algorithmic anxiety

- Dealing with appealing to potential guests
  - Shared understanding of social situations
- Dealing with algorithms
  - Ambiguous set of rules
  - Compounds anxiety of hosts

# Algorithmic anxiety

- Dealing with appealing to potential guests
  - Shared understanding of social situations
- Dealing with algorithms
  - Ambiguous set of rules
  - Compounds anxiety of hosts
- Concern that actions will be deemed negative

# Algorithmic anxiety

“

*So, I see that you ask a number of questions as to why you are saying no to this guest. And usually it's got nothing to do with color, race, culture. Nothing. Nothing for me. It's got other factors. But if I don't answer correctly, I think, 'Uh oh. I'm going to be punished.'*

# Coping Strategies

# Reverse-engineering search

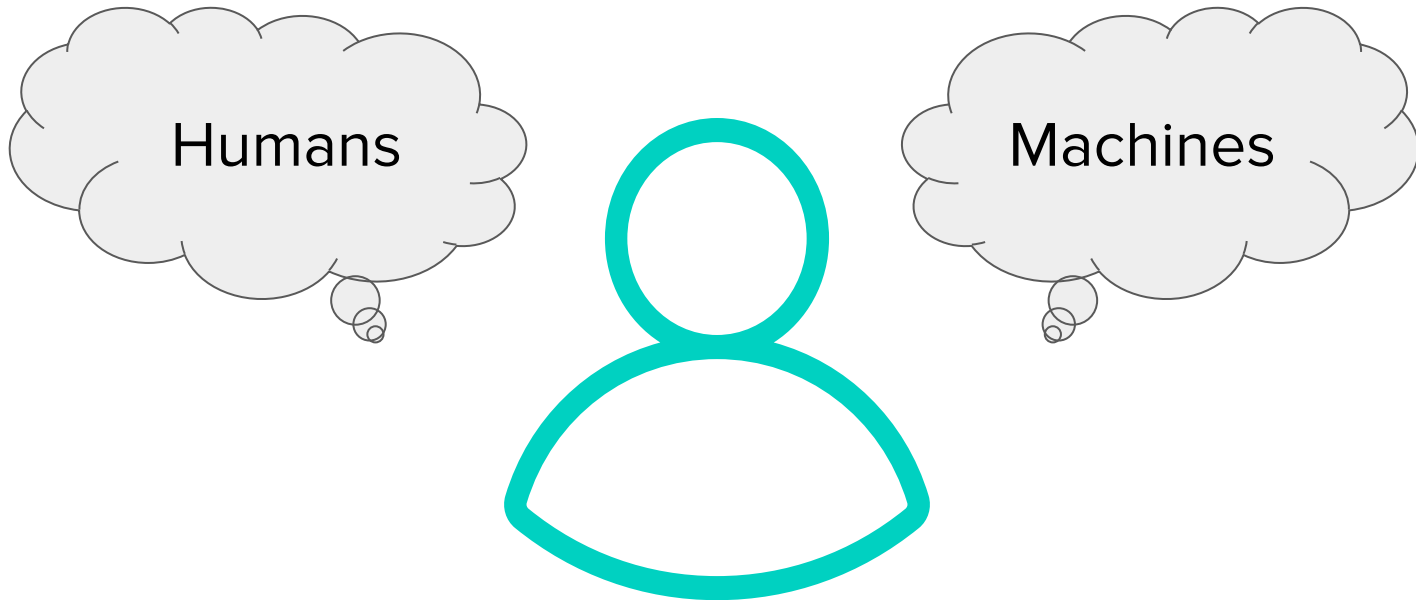
- Read Online forums
- Airbnb engineering team's blog posts
- Experimental approach



# Conclusions

# The Double Negotiation

Do other platforms also have double negotiation?



# The Double Negotiation



# Addressing algorithmic anxiety

- Platforms can assuage anxiety
  - Key axes: Control and Uncertainty
  - Add information, provide control

# Questions?

## Algorithmic Anxiety and Coping Strategies of Airbnb Hosts

Shagun Jhaver, Yoni Karpfen, Judd Antin



@shagunjhaver



[jhaver.shagun@gatech.edu](mailto:jhaver.shagun@gatech.edu)

