

Contestable AI

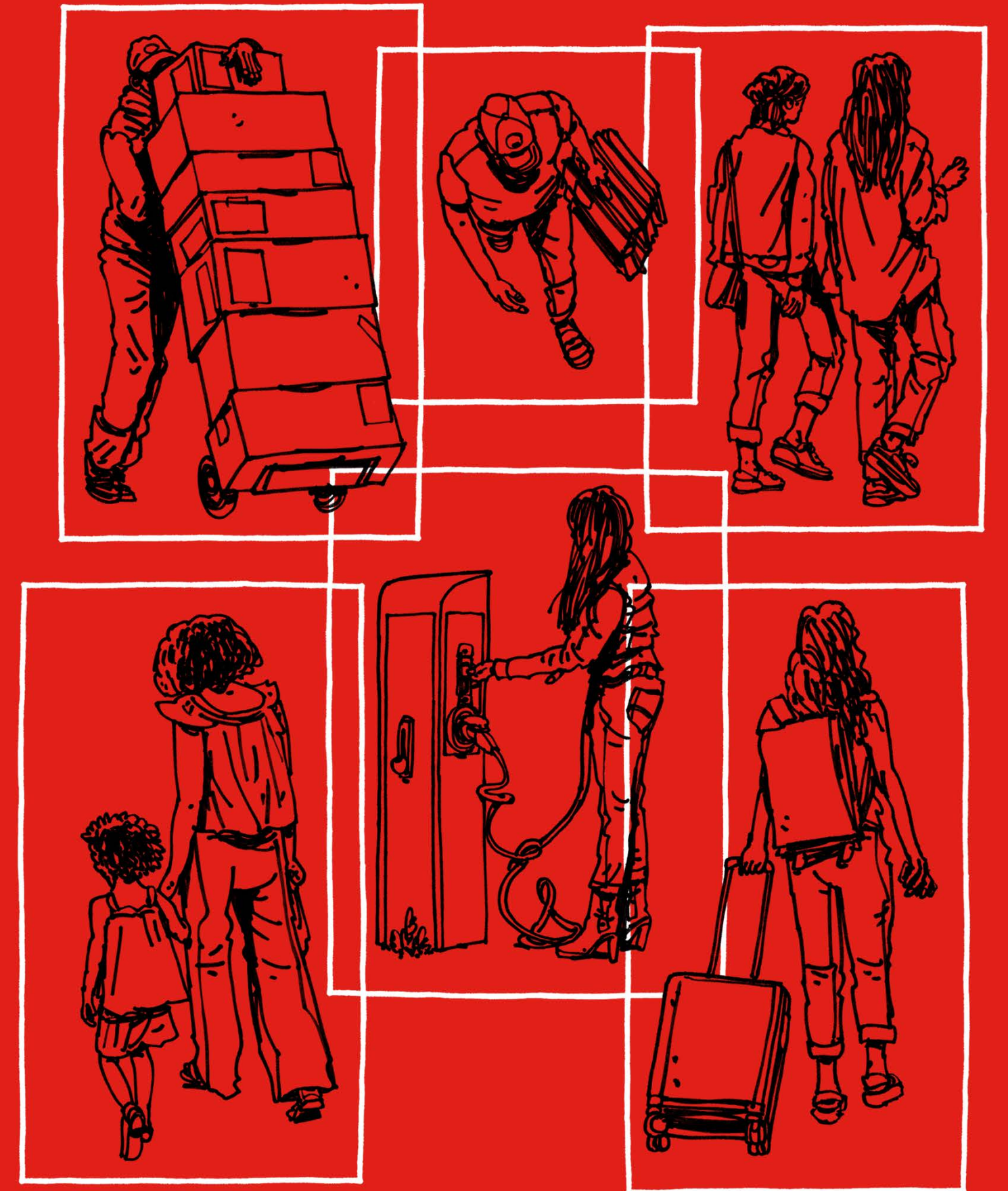
Building Democratic Control Over Public Artificial Intelligence

CMDonderdag

Communication and Multimedia Amsterdam

6 March 2025

Kars Alfrink • TU Delft • contestable.ai



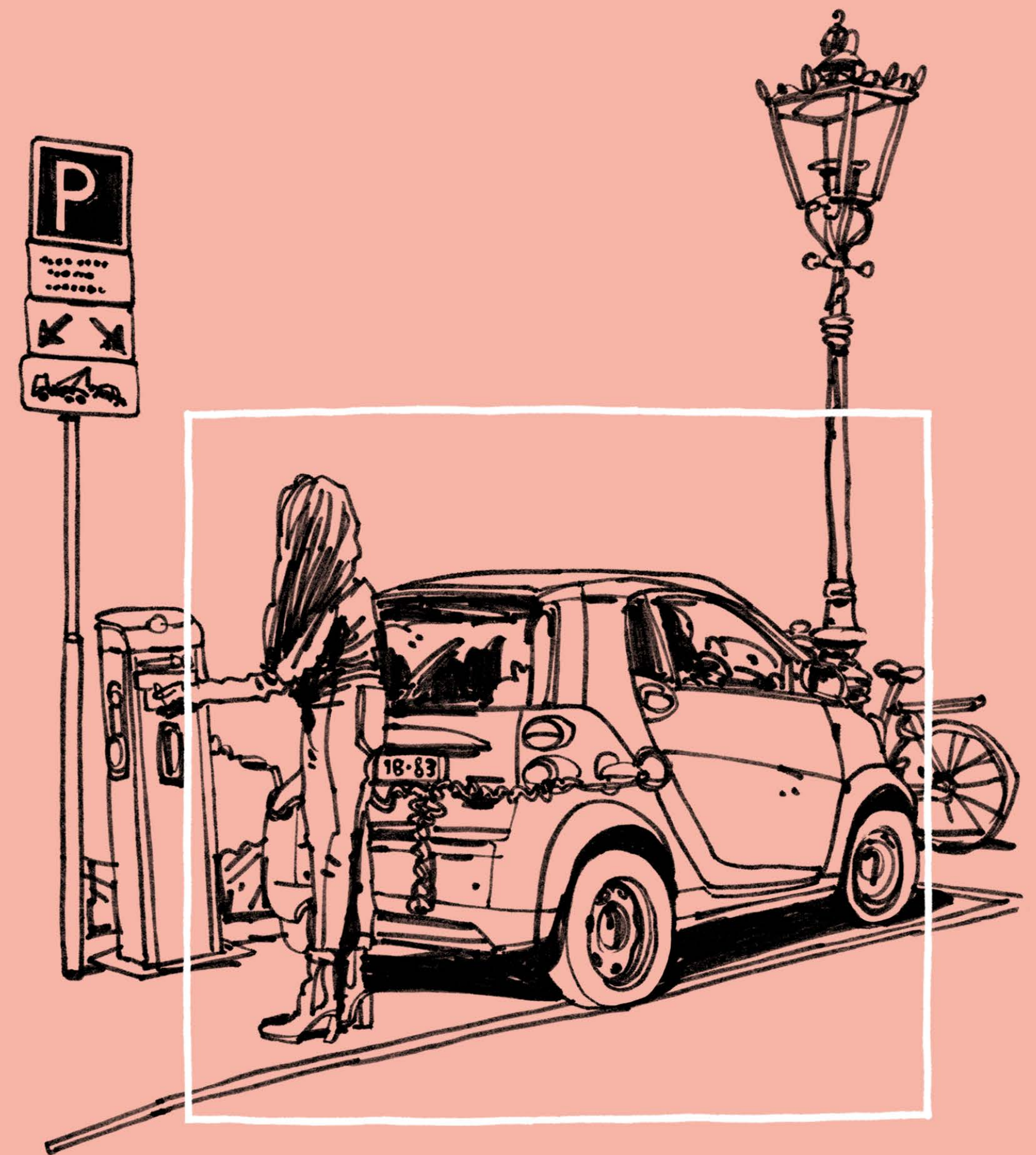
Art: Joost Stokhof

Overview

1. **Defining** contestable AI
2. **Designing** contestable AI
3. **Beyond** contestable AI

Part 1

Defining Contestable AI



Defining Contestable AI • Designing Contestable AI • Beyond Contestable AI

Public AI

The use of feedback-adjusted **data analysis** and processing to augment, support, or automate **policy execution** in the **public sector**.



Vattenfall



AMS Institute



Robin Utrecht/ANP

Public AI systems impact
people's **autonomy**.

Discovering contestability

The Transparent EV Charging Station

Gemeente Amsterdam

14:00

This smart charging station automatically determines the optimal use of green electricity.

base speed 8.28 kW

Green algorithm

- rule sharing green electricity: Households demand **little** → 0.00 kW
- rule shared car benefit: There is **1** shared car → -1.10 kW
- rule green bonus: There is **lots** of extra sun and wind → 2.76 kW
- rule maximum power: There is **no** plug available → 0.00 kW

You load a bit faster until 18:00. Then the speed decreases. 9.94 kW



The Incredible Machine



Examples of local contestation in EV charging:

Adjust charge speed up or down
(e.g., in case of emergency).

Example of global contestation in EV charging

**Dispute policy optimization
targets** (e.g., sustainability,
shared mobility).

From autonomy,
through human control,
to **contestability**.

Contestation

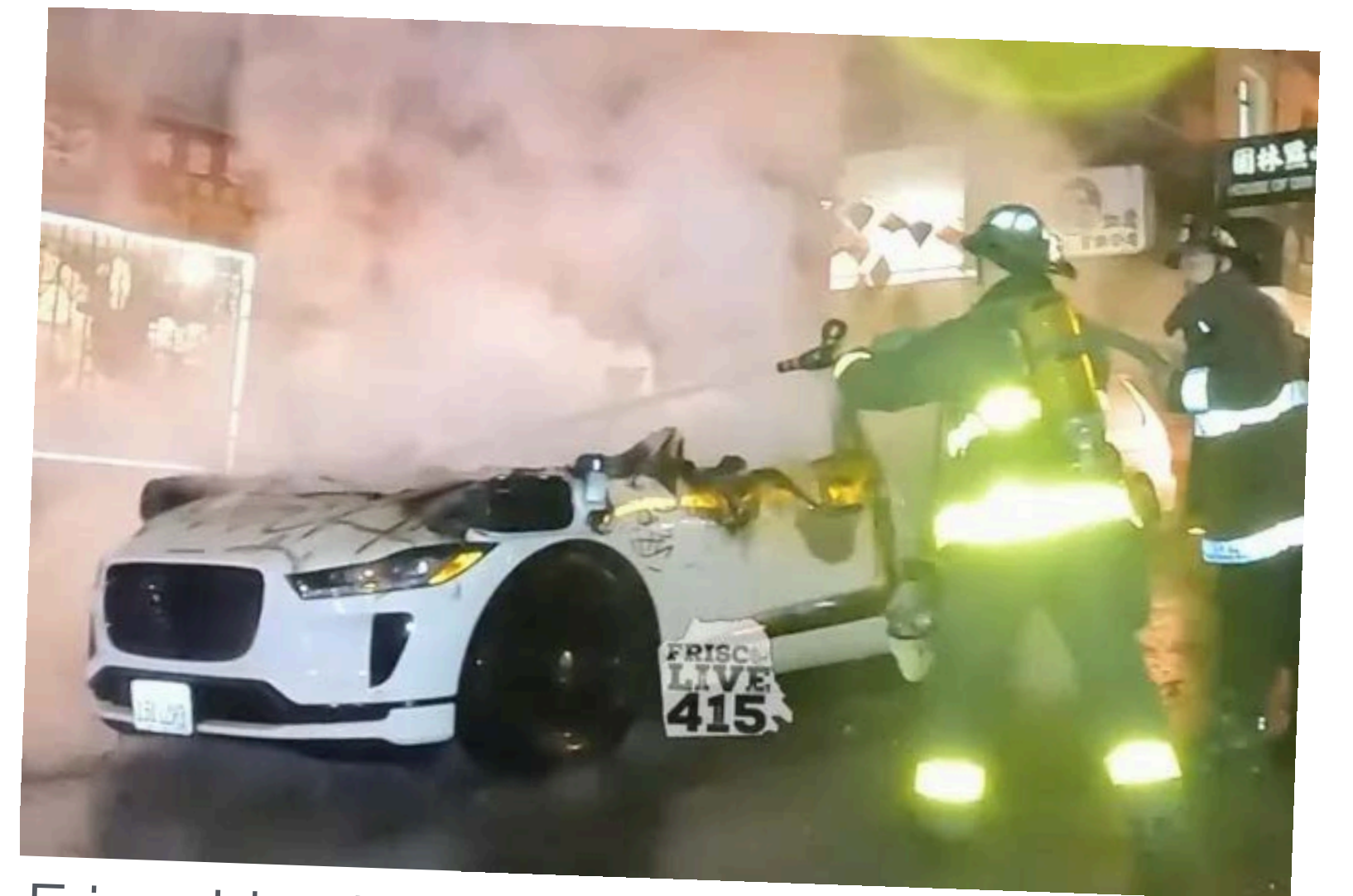
Opposing an action

Competing for power

Contested versus contestable.



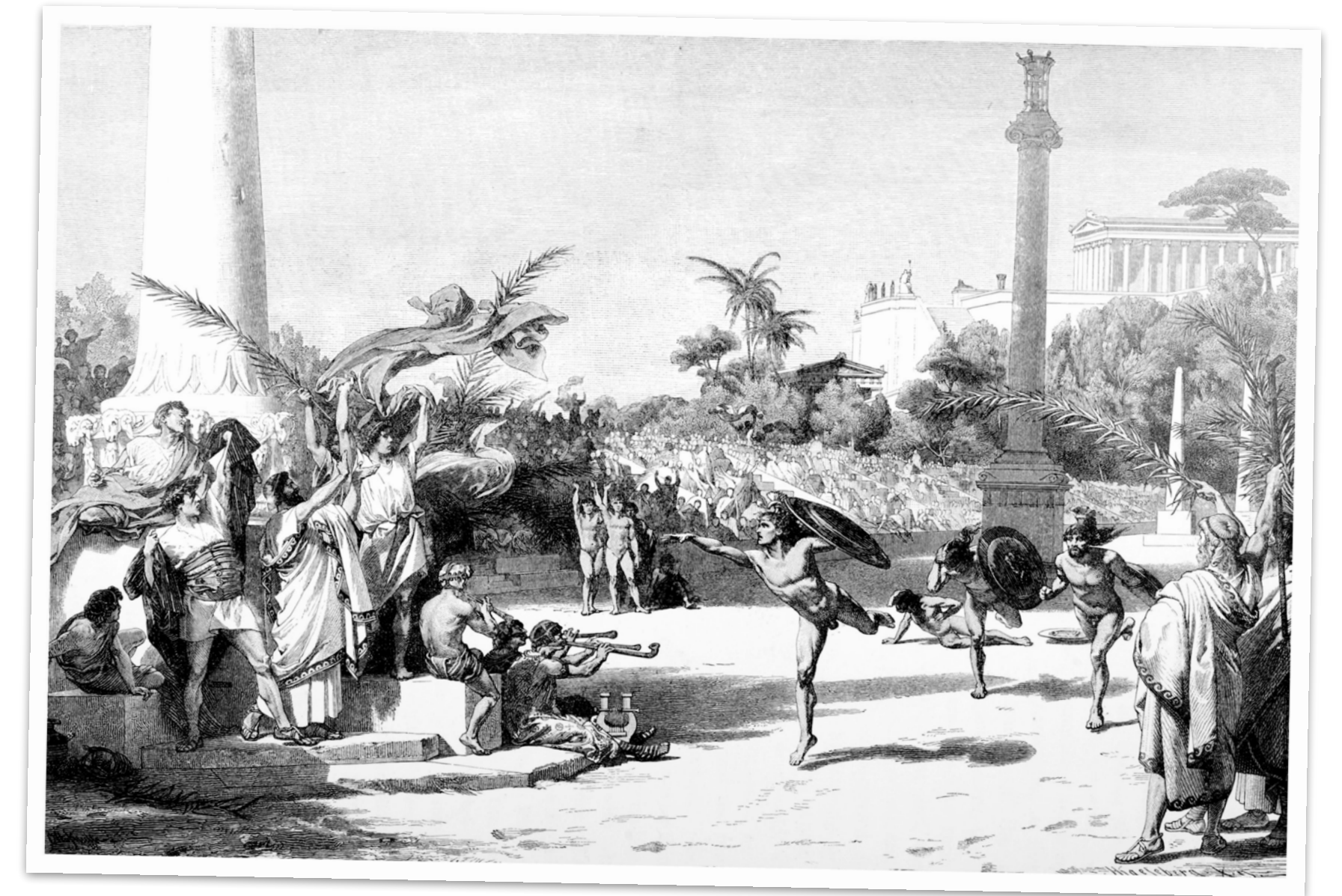
Chris Mcgrath/Getty Images



FriscoLive415

Contestable AI

AI that is **open and responsive to dispute, throughout the system lifecycle, establishing a dialogical relationship between decision subjects and system operators.**



The Arena

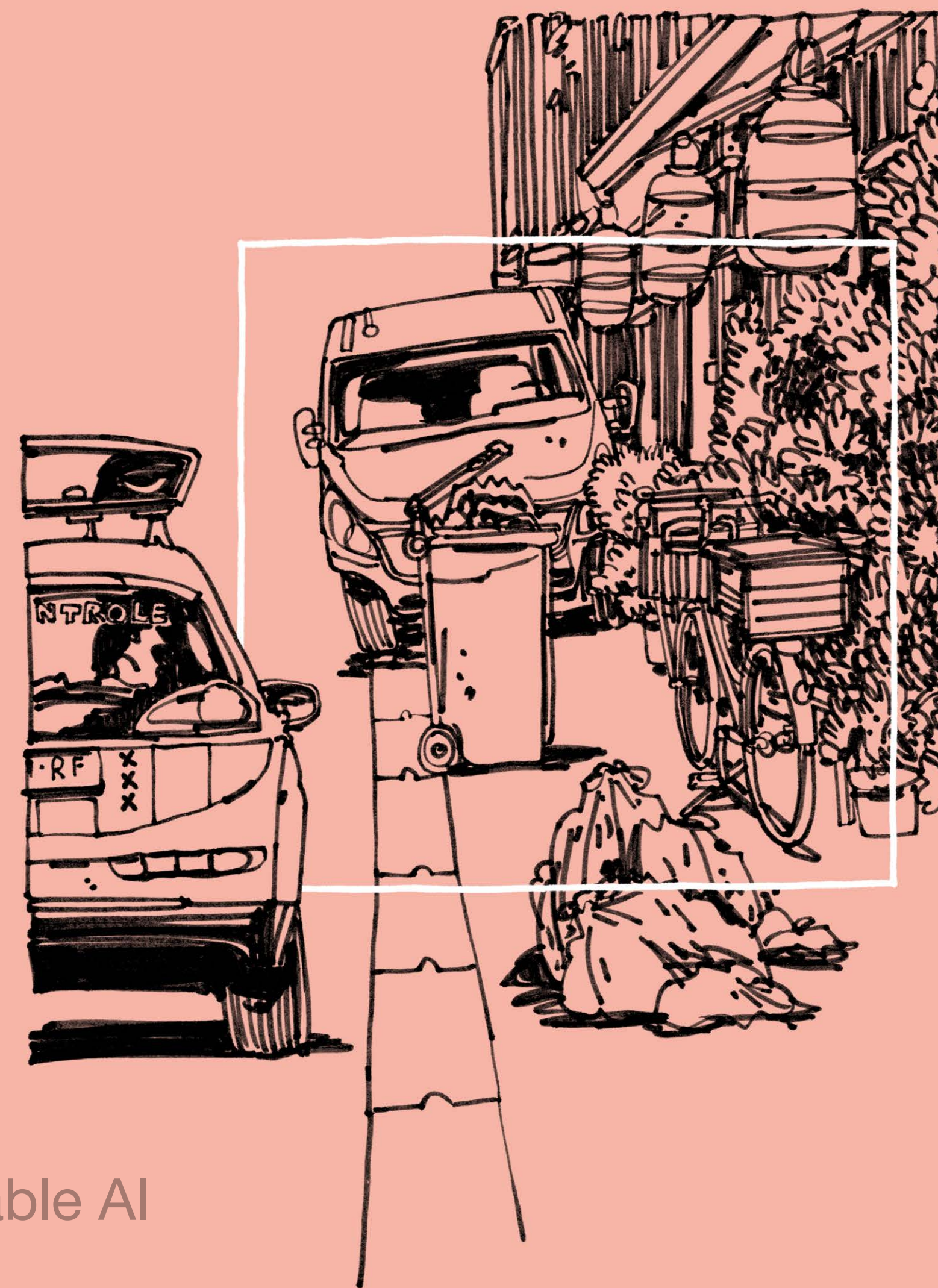


Defining contestable AI

**Contestability creates an arena
for shaping better public AI.**

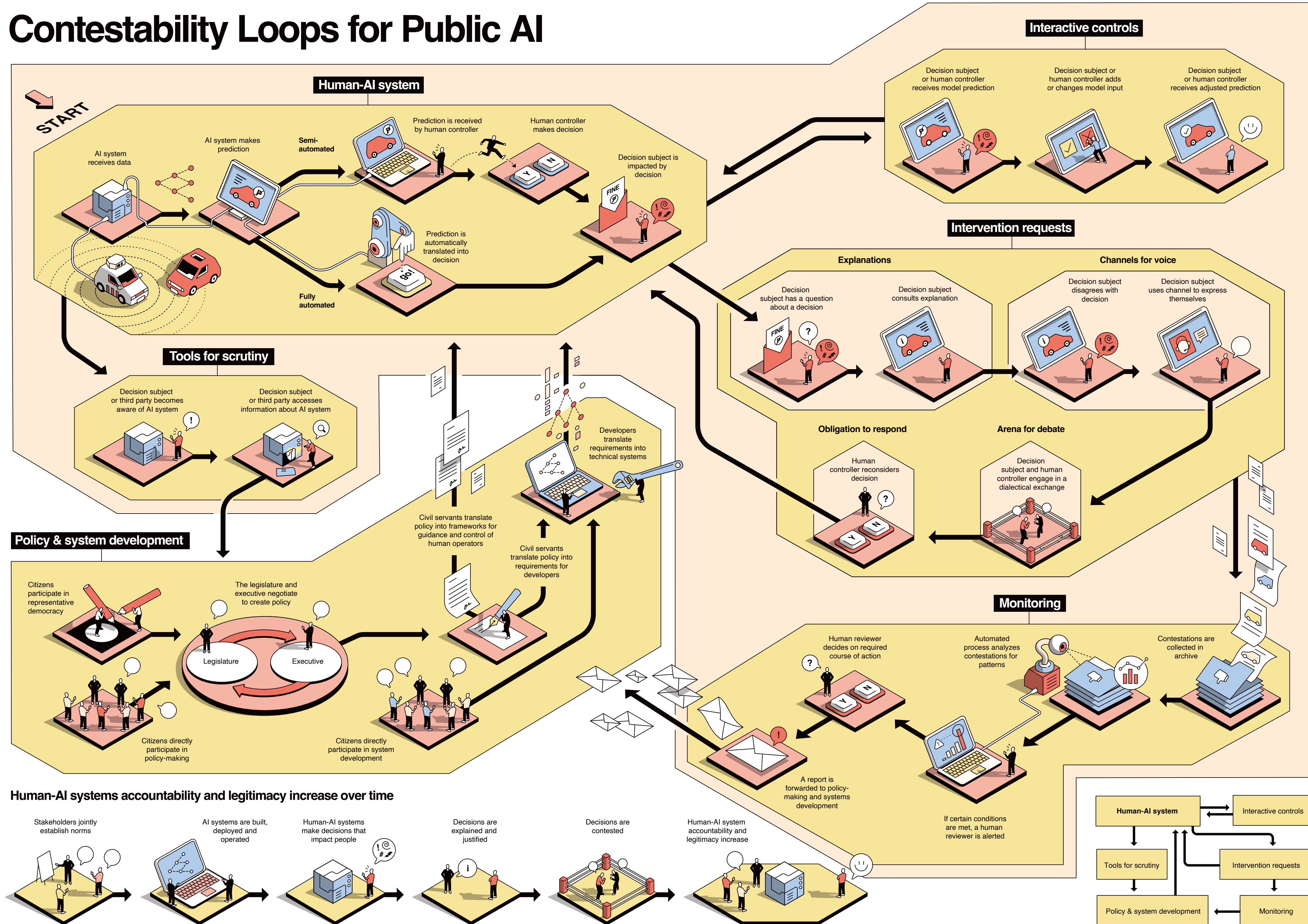
Part 2

Designing Contestable AI



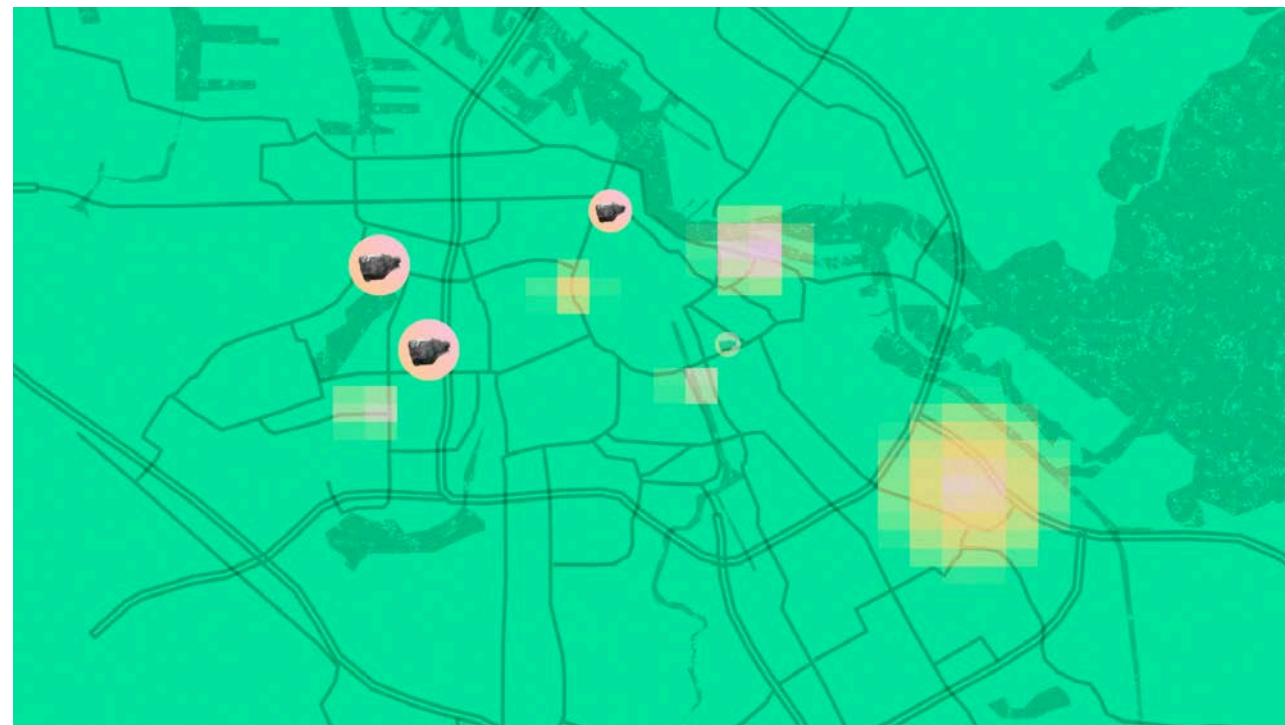
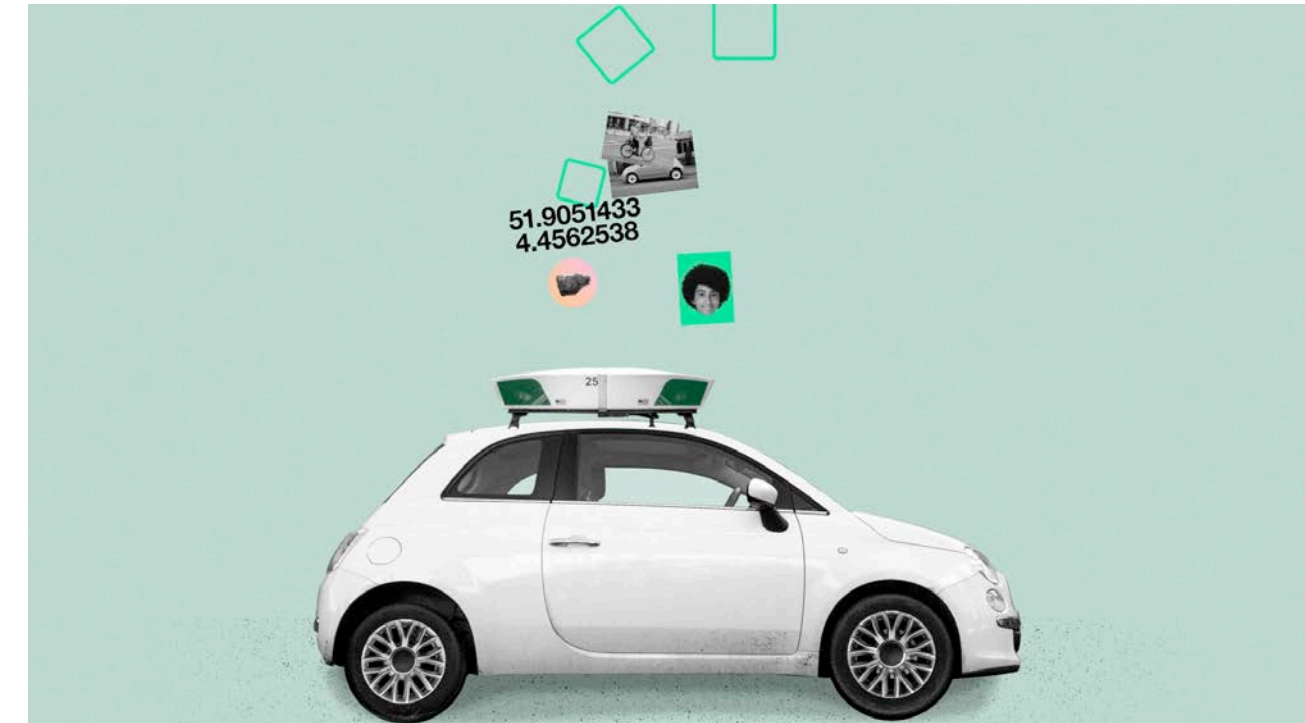
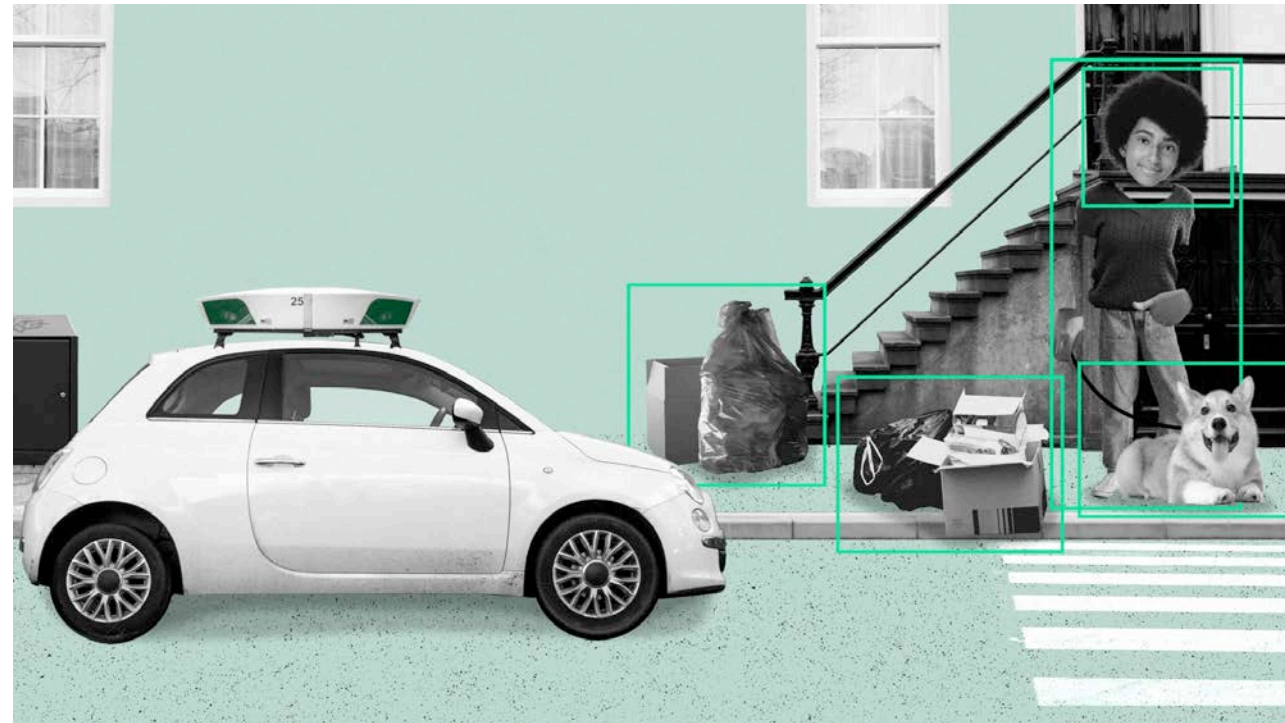
Defining Contestable AI • Designing Contestable AI • Beyond Contestable AI

Contestability Loops for Public AI



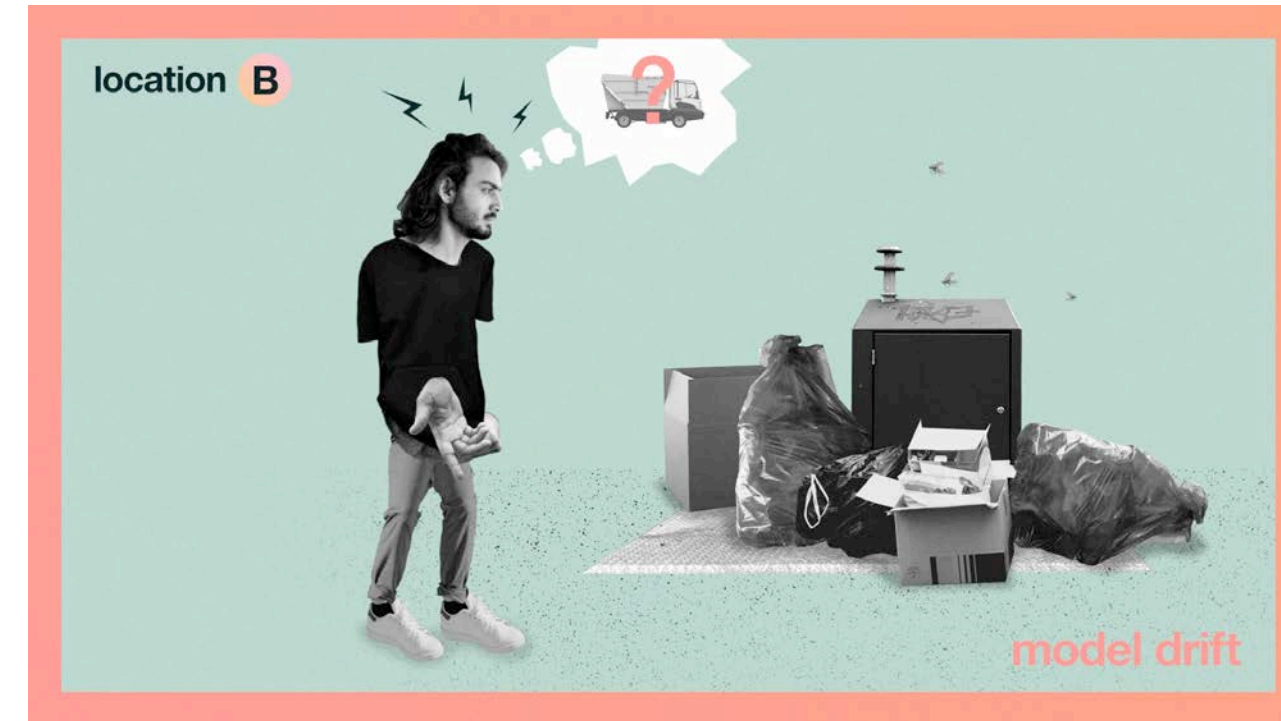
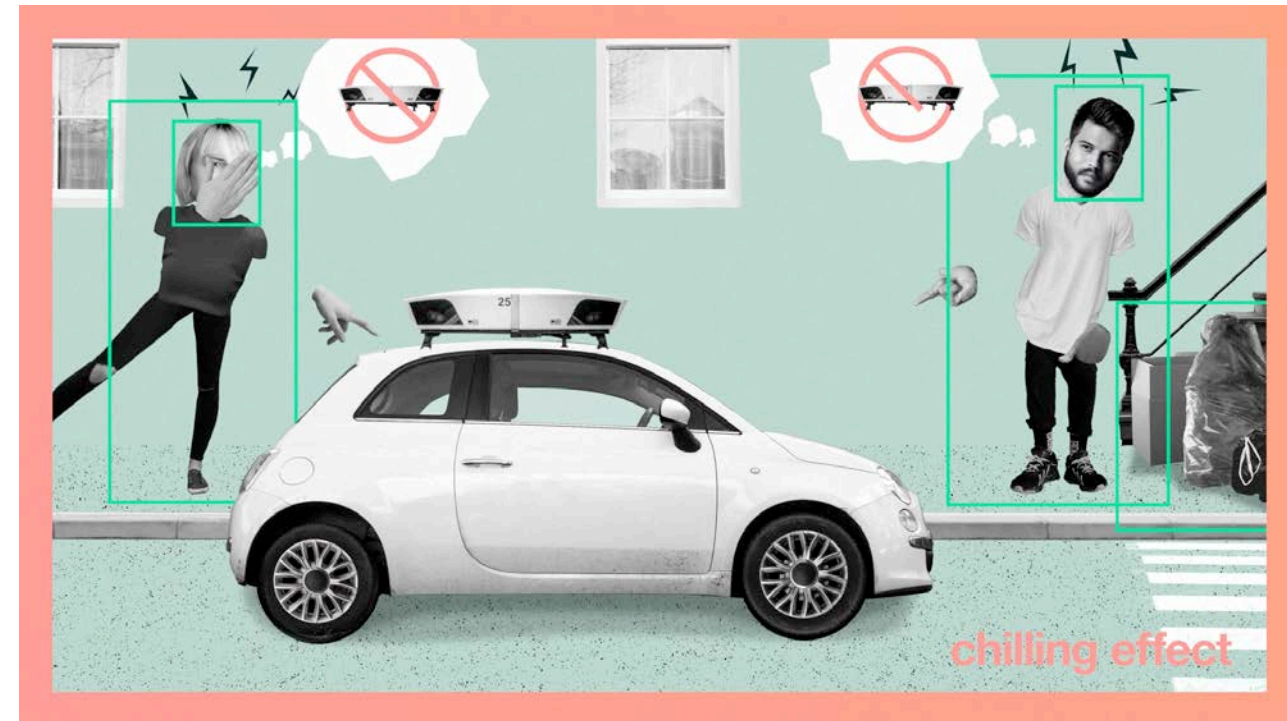
contestable camera cars

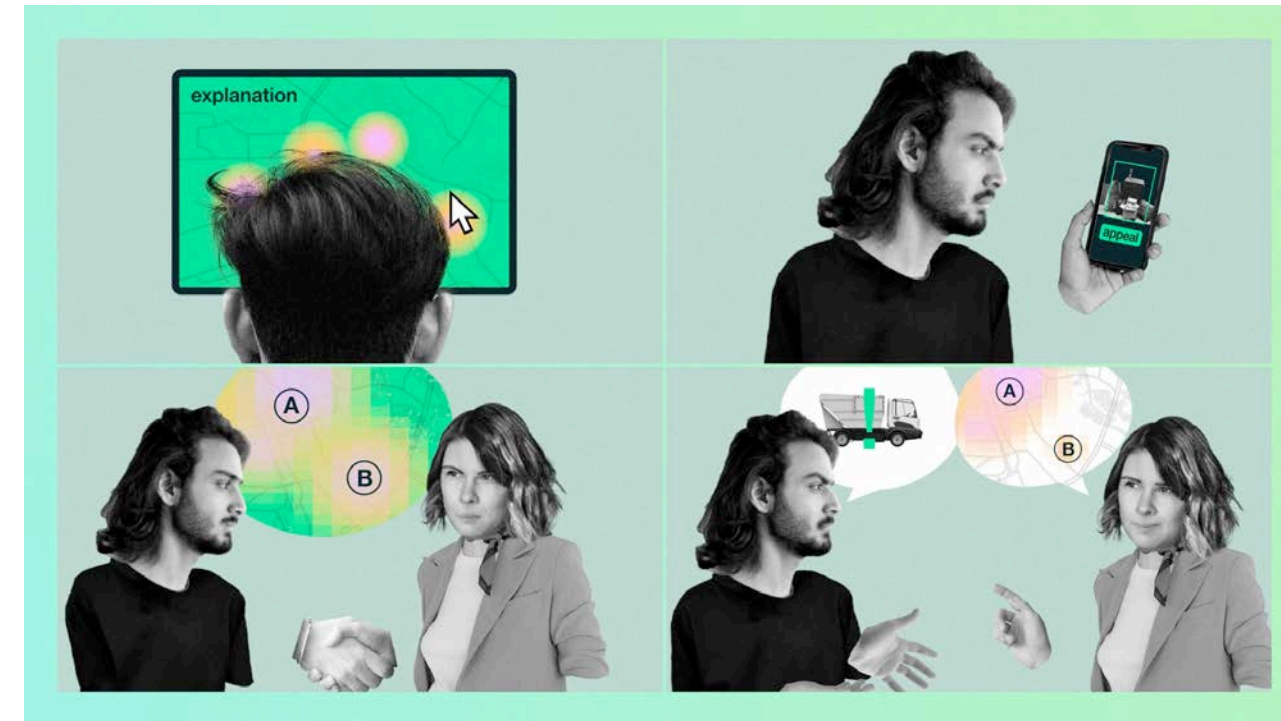
edu.nl/g4bx8

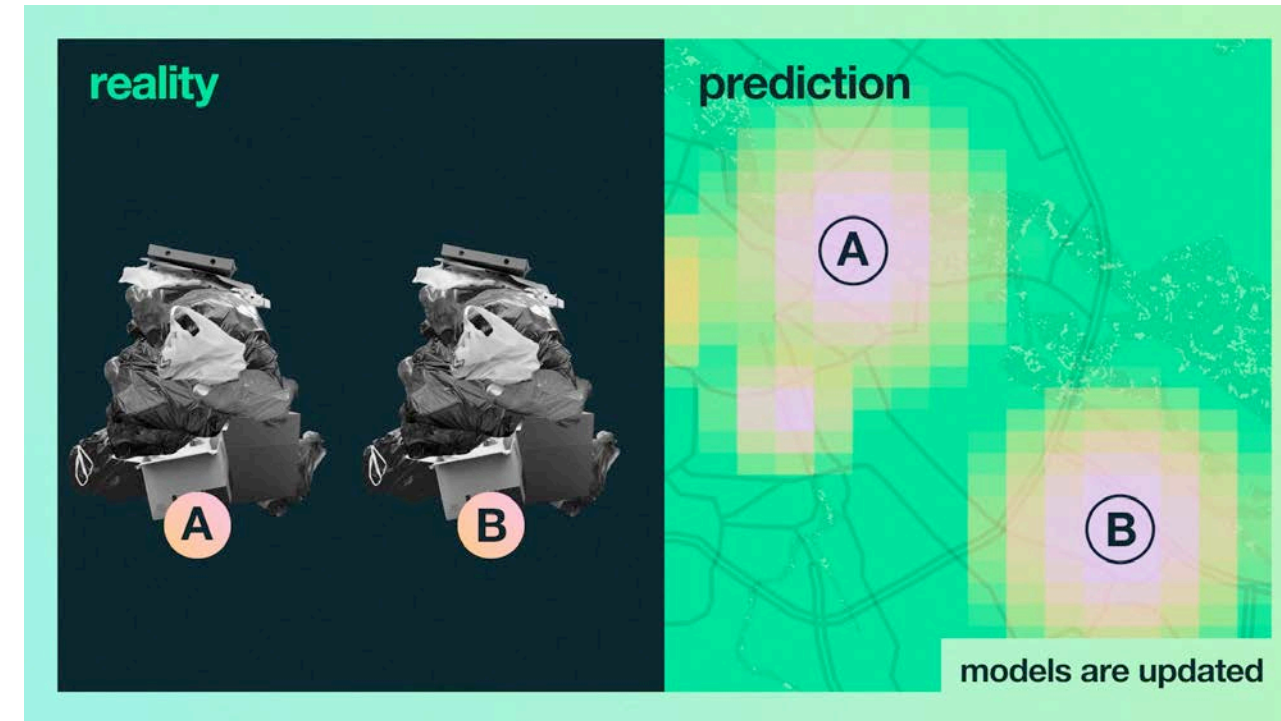
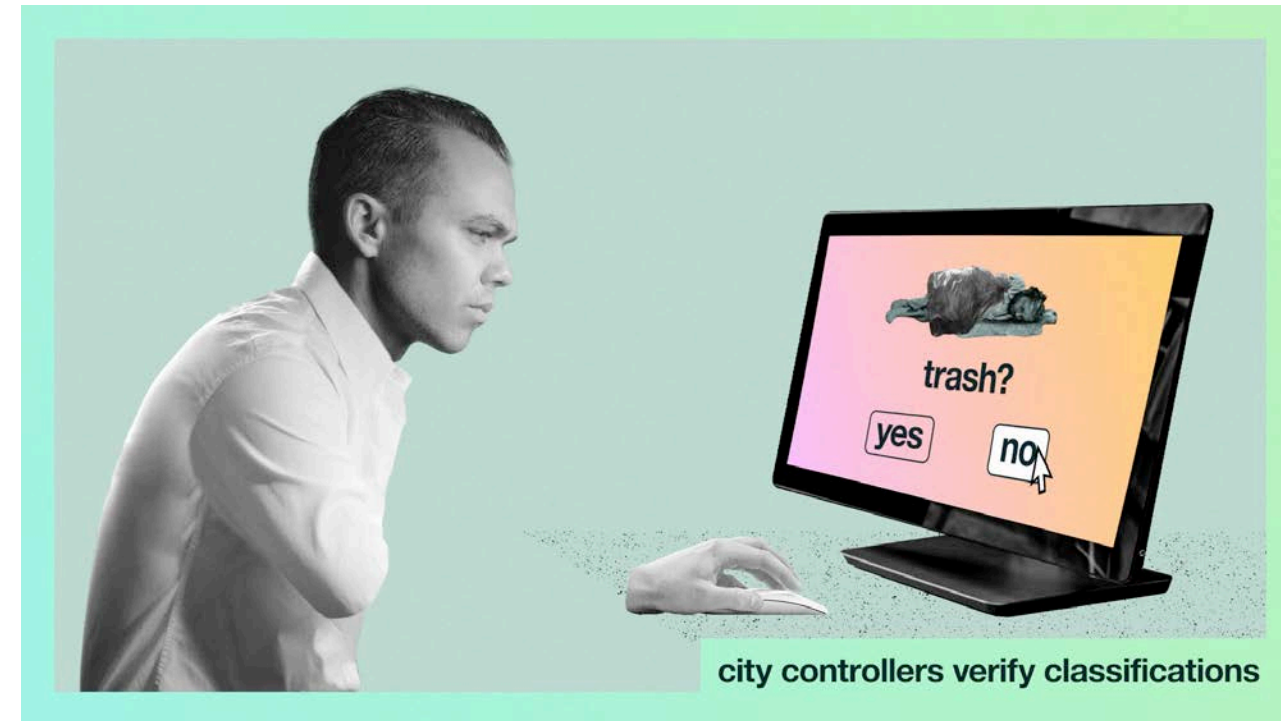
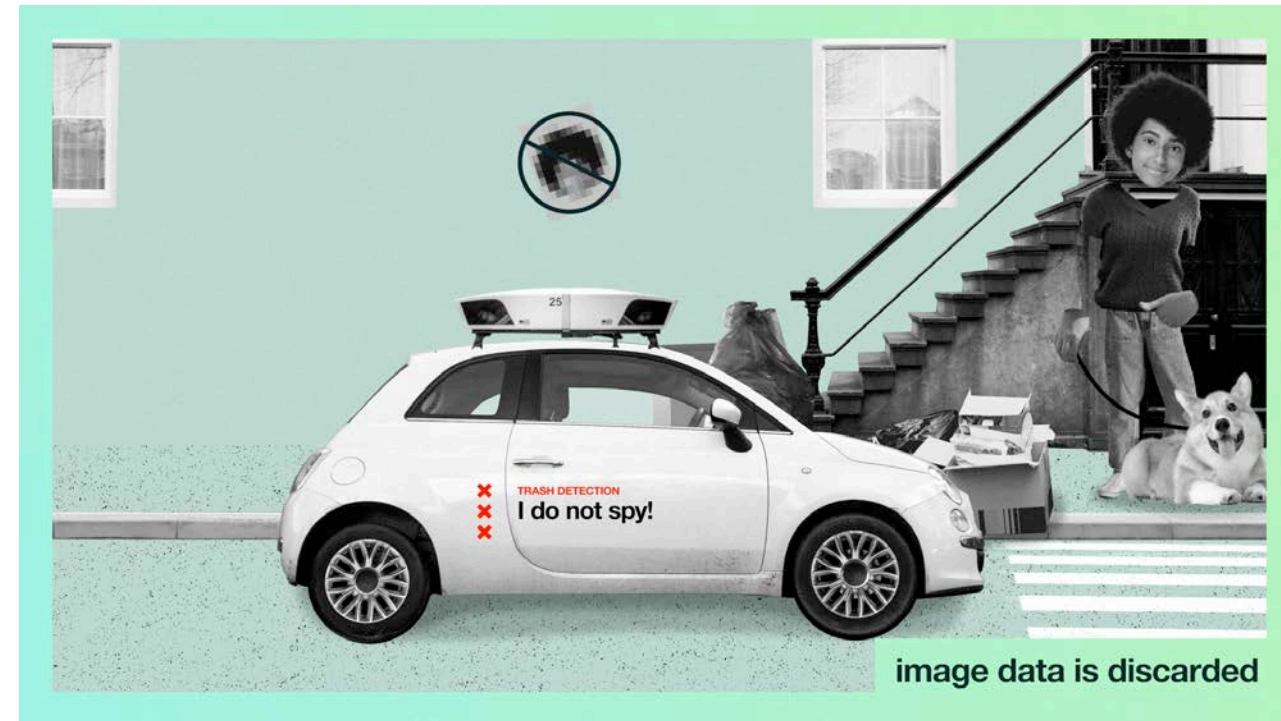


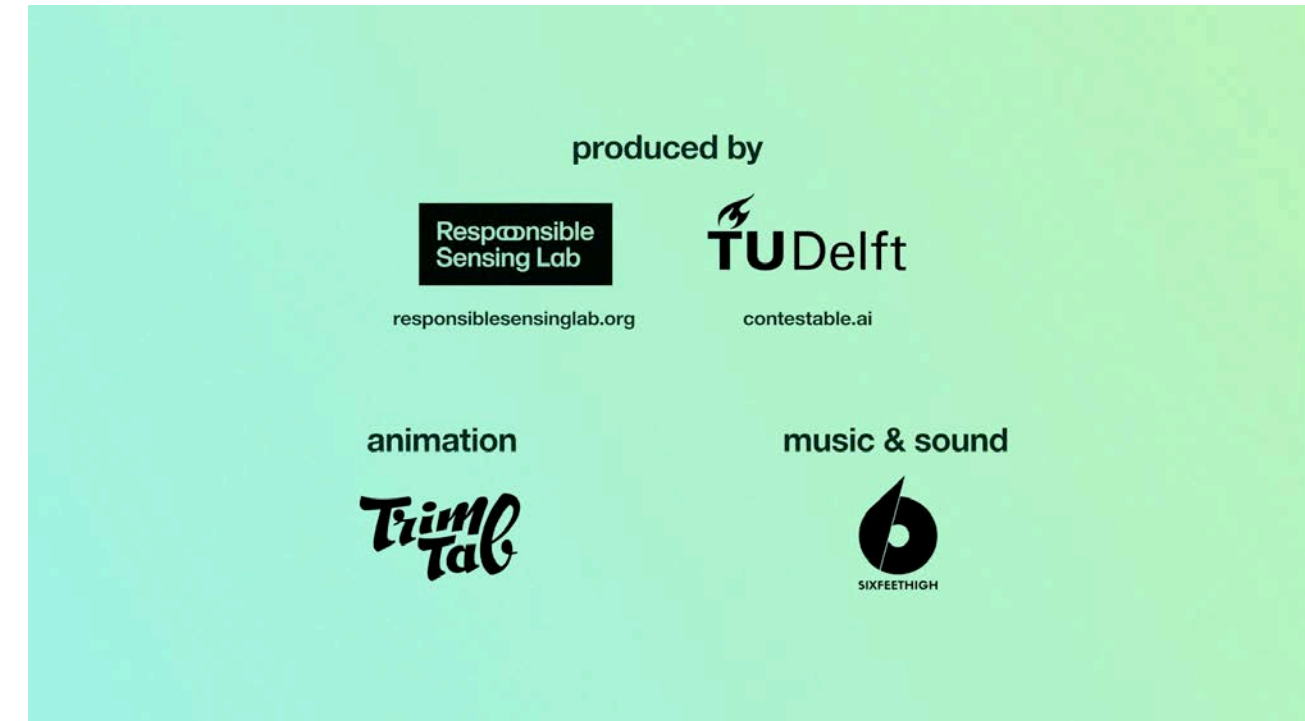
vehicle	destination
truck 03	→ location a
truck 12	→ location b
truck 17	...
truck 09	...
truck 02	...









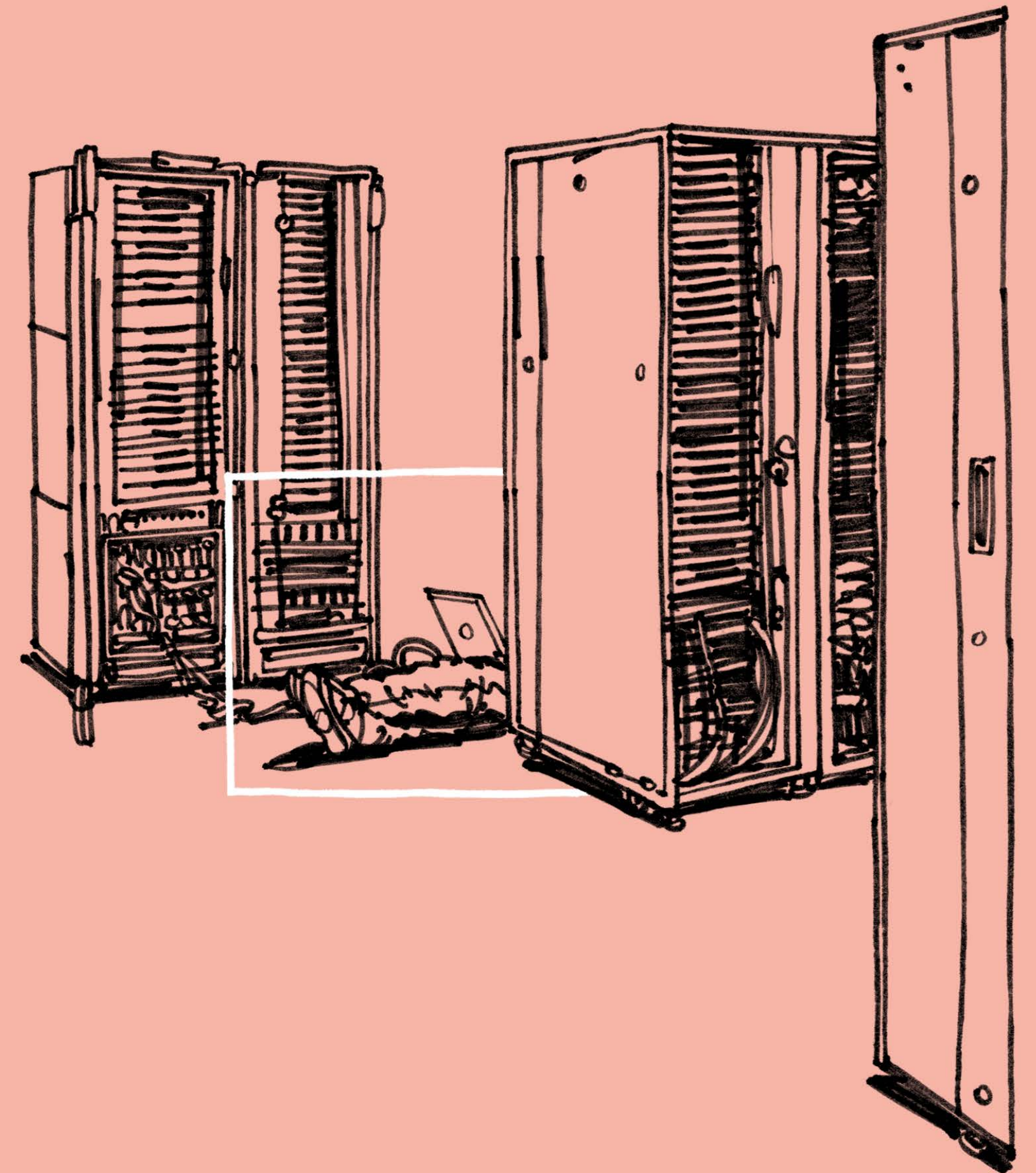


Designing contestable AI

**Contestability works through
interconnected cycles of change.**

Part 3

Beyond Contestable AI



Defining Contestable AI • Designing Contestable AI • Beyond Contestable AI

A historical painting depicting a battle scene, possibly from the Napoleonic era, showing soldiers on horseback and on foot. The scene is overlaid with a semi-transparent grid pattern. The painting is framed by ornate, classical-style scrollwork.

Contestability in the age of a global AI arms race—

The political economy of contemporary AI

- 1. US-China market dominance**
- 2. Three-tier hierarchy**
- 3. Compute and talent trump data**
- 4. Global compute divide**
- 5. Cloud-based service model**
- 6. Network effects**

(Srnicek, 2022)

Whose AI sovereignty?

AI sovereignty means **controlling AI's building blocks.**

Three key choices shape AI sovereignty debates:

1. **Who controls AI—nations or citizens?**
2. **Join the AI race or chart our own path?**
3. **Benefit Europe or serve the world?**

(Mügge, 2024)

Alternative ways of “doing AI”

- Resource efficient
- Decentralized
- Transparent & accountable

E.g. Community-Driven Language Models, Hybrid Approaches, Local-First AI, & Task-Specific Solutions.

(Luitse & Denkena, 2021)

“Wij kunnen hier wel degelijk computeren, maar heel veel mensen hebben gekozen voor **de Amerikaanse manier van computeren.**”

— Bert Hubert



What design can do 1/3

Framing, Making, Specifying.

- **Framing**: Envision AI as public infrastructure, not corporate property.
- **Making**: Show how democratic AI control could feel.
- **Specifying**: Plan community-owned compute systems.

(Löwgren & Stolterman, 2004)

What design can do 2/3

Design systems that shift AI from individual consumer products to collectively governed public infrastructure.

What design can do 3/3

**Build solidarity networks to
develop collective power
for change.**

Beyond contestable AI

**We must design alternatives to
big tech's AI monopoly.**

To conclude...

1. Defining contestable AI:

Arena for shaping public AI.

2. Designing contestable AI:

Interconnected cycles of change.

3. Beyond contestable AI:

Alternative ways of doing AI.

To conclude...

Democratic control of AI
requires both contestability
and community power.

Thank you!

Contestable AI: Building Democratic Control Over Public Artificial Intelligence

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