Exploring DevOps Practices as Sites for AI Contestability

NWO ICT.OPEN

Utrecht, The Netherlands

16 April 2025

Kars Alfrink · TU Delft · contestable.ai

Knowledge &
Intelligence
Design

Problem
AI systems evolve post-deployment, leading to drift

Drift—technical
Divergence between training data and real-world inputs

Drift—sociotechnical

When AI systems and human behaviors co-evolve through feedback loops

Michiel Wijnbergh

Example
Smart EV charging

Technical drift (model)

Example
Smart EV charging

Sociotechnical drift (system)

Michiel Wijnbergh

Static governance fails dynamic AI systems

DevOps as an enabler of
public oversight and control

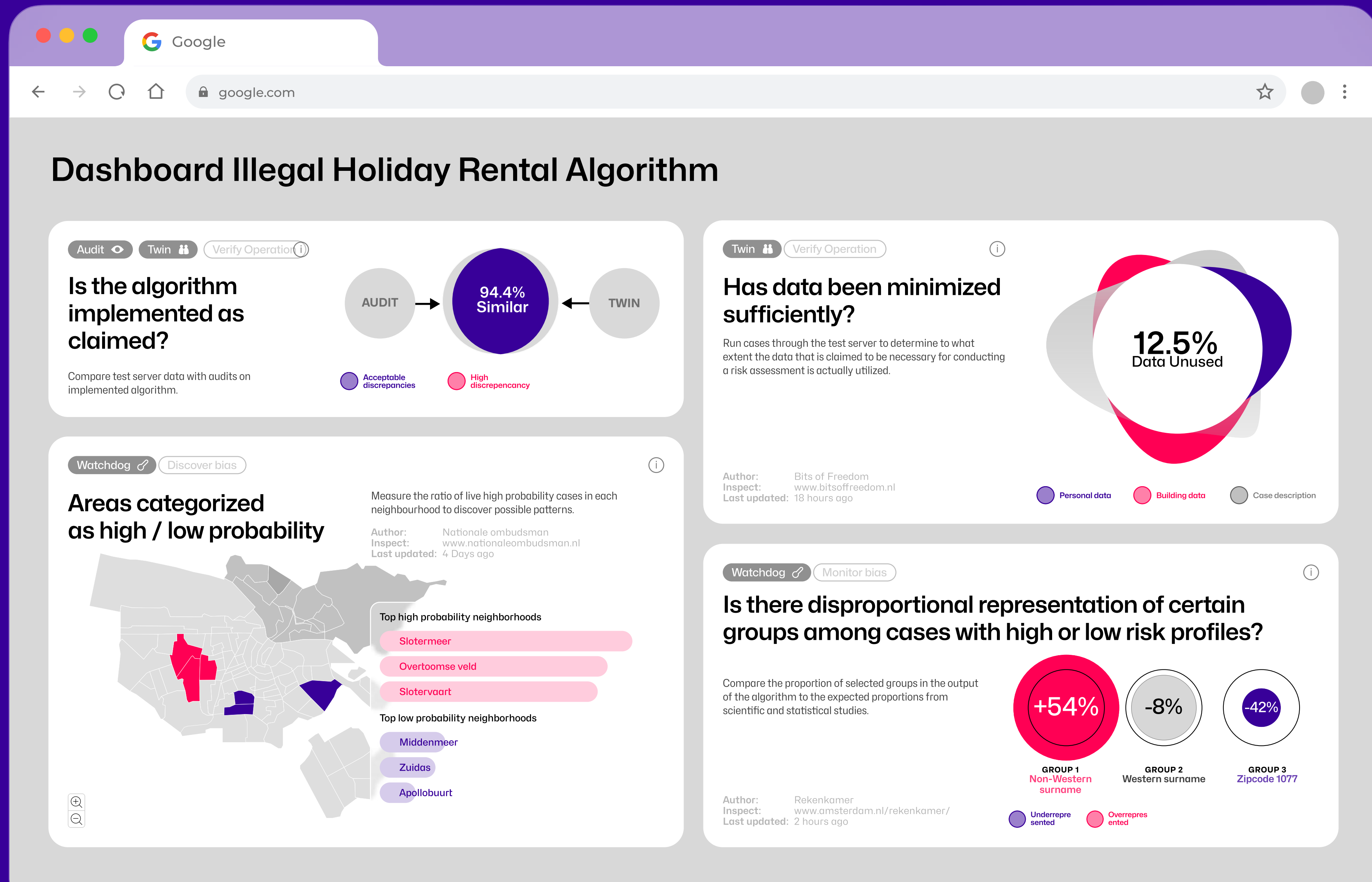# Expanded metrics
Monitoring infrastructure
Public-facing feedback channels
Low-cost revisability

Example
Smart EV charging
DevOps interventions

Michiel Wijnbergh

https://responsiblesensinglab.org/projects/transparent-charging-station

Dashboard Illegal Holiday Rental Algorithm

Is the algorithm implemented as claimed?

Audit · Twin · Verify Operation

Compare test server data with audits on implemented algorithm.

AUDIT → 94.4% Similar ← TWIN

- Acceptable discrepancies
- High discrepancy

Has data been minimized sufficiently?

Twin · Verify Operation

Run cases through the test server to determine to what extent the data that is claimed to be necessary for conducting a risk assessment is actually utilized.

12.5% Data Unused

Author: Bits of Freedom
Inspect: www.bitsoffreedom.nl
Last updated: 18 hours ago

- Personal data
- Building data
- Case description

Areas categorized as high / low probability

Watchdog · Discover bias

Measure the ratio of live high probability cases in each neighbourhood to discover possible patterns.

Author: Nationale ombudsman
Inspect: www.nationaleombudsman.nl
Last updated: 4 Days ago

Top high probability neighborhoods
- Slotermeer
- Overtoomse veld
- Slotervaart

Top low probability neighborhoods
- Middenmeer
- Zuidas
- Apollobuurt

Is there disproportional representation of certain groups among cases with high or low risk profiles?

Watchdog · Monitor bias

Compare the proportion of selected groups in the output of the algorithm to the expected proportions from scientific and statistical studies.

+54% — GROUP 1 Non-Western surname
-8% — GROUP 2 Western surname
-42% — GROUP 3 Zipcode 1077

Author: Rekenkamer
Inspect: www.amsterdam.nl/rekenkamer/
Last updated: 2 hours ago

- Underrepresented
- Overrepresented

https://responsiblesensinglab.org/projects/design-sprint-tools-for-third-party-scrutiny-2

Future directions
Participatory design of contestability metrics and instrumentation with public stakeholders

Thanks!

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