

# Local-only tools for AI validation



13-06-2025

## Agenda

## What is local-only?

Example 1: unsupervised bias detection



2.

- Example 2: synthetic data generation

#### Q&A

#### Activities NGO Algorithm Audit



Knowledge platform



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Normative advice commissions

Technical tools

Advising on ethical issues that arise in concrete algorithmic practice through deliberative and diverse normative advice commissions.

Bringing together experts and knowledge to foster the collective learning process on the

responsible use of algorithms, e.g., white

resulting in <u>algoprudence</u>

papers and public standards

Implementing and testing technical tools to detect and mitigate bias, e.g., unsupervised bias detection tool and synthetic data <u>gen</u>eration

**Project work** 

Support for specific questions from public and private sector organisations regarding responsible use of AI

#### Innovation grant



Dienst Uitvoering Onderwijs Ministerie van Onderwiis. Cultuur en Ministerie van Binnenlandse Zaken en Koninkriiksrelaties



- 2. Example 1: unsupervised bias detection
- 3. Example 2: synthetic data generation



## How does local-only relate to cloud-based software?

Characteristic	Cloud solution	Local-only tool
Data processing	Data is processed on external server outside the organisation's control	Data processed on the local computer, confidentiality ensured
Service reliability	Service shuts down? Lose everything!	😌 Works completely offline once loaded
Cost structure	Recurring costs for compute, storage, and data transfer	😌 No ongoing server costs, bandwidth charges, or usage fees
Version control	Centrally managed, use of Docker image for dependencies	Centrally managed, all software is loaded in the browser/web app

## Technical architecture local-only tools





## How to install local-only tools?

#### 1. Cline codebase

git clone [repository-url]
cd [your-repository-directory]

2. Install dependencies

npm install

3. Building for production

#### npm run build

4. Host on intranet or cloud tenant

#### link/url

The open-source European Union Public Licence v1.2 allows the use, modification, and further sharing of the tools, provided that:

- > The same license is used
- > The original developers are credited
- > Offline/online access to the codebase is maintained



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## What is unsupervised bias detection?

Goal: identifying groups where an AI system or algorithm shows deviating performance if demographic data are not available





### Steps performed by unsupervised bias detection tool



Corresponding author

## Single software module, ready for local use and customizable for various organizations

		🌰 Web app – Unsupervised bias detectie tool 🛛 🛛 🖢 🖿 🖢	
IJ	Available as demo on Algorithm Audit's <u>website</u>	Data • Dataset ① •	Parameters Iteraties (10) ① Minimale clustergrootte (25) ① Interpretatie van gelijkheidsmetriek ③ C Lagere waarde van gelijkheidsmetriek is beter, bijv. foutpercentage Hogere waarde van gelijkheidsmetriek is beter, bijv. nauwkeurigheid
	Available as <u>pip</u> <u>package</u> unsupervised-bias- detection	Gelijkheidsmetriek ③         Selecteer een kolom         V    Probeer het uit! Geen dataset bij de hand? Gebruik onze demoset.	Start analyse → Demo dataset
<b>()</b>	Source code available on <u>Github</u>		



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## What is synthetic data?

Goal: artificial data that replicates the statistical characteristics of the original dataset at a group level without containing any personal data







#### Webinar - Open-source tools for AI validation





## Single software module, ready for local use and customizable for various organizations





#### Help to develop open-source local-only tools further

#### Feedback on existing web apps

- > Datasets raising error
- How error messaging can be improved for debuggin functionality
- > Flow web app output
  - > What can be better/improved?
- > Documentation website/Github

#### New features

- > Open issue in Github
- > Clone and prepare PR
- > Send email to info@algorithmaudit.eu

#### Usage

- > Start using web app locally
- > Use pip packages locally



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www.algorithmaudit.eu



info@algorithmaudit.eu



https://www.linkedin.com/company/algorithm-audit/



https://github.com/NGO-Algorithm-Audit

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Stichting Algorithm Audit is bij de Kamer van Koophandel geregistreerd onder nummer 83979212

