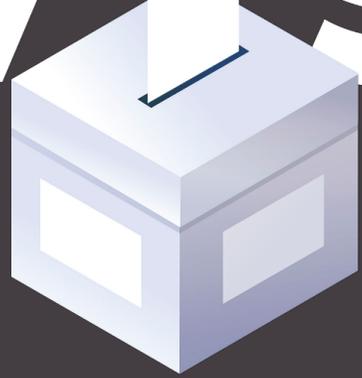


# REVISOR



**Your Unblinking  
Poll Watcher™**

[www.pollwatcher.ai](http://www.pollwatcher.ai)

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## REVISOR - Your Unblinking Poll Watcher™

The Revisor system is a neural network-based software package for counting the number of actual voters and monitoring compliance with some electoral procedures. This AI-enabled monitoring is fast, reliable, inexpensive and doesn't know the limits of the scale. For a fraction of the cost, you can deploy an election observation mission with thousands of poll watchers covering 100% of polling stations in the target constituency.

### **And those poll watchers don't even blink!**

The system utilizes the ability of neural networks to learn to recognize physical objects, track their relative movements, detect voting events and distinguish them from other activities at a polling station. The system can independently count the number of voters with high precision (up to 98% accuracy, depending on the relative position of cameras and ballot boxes in a polling station). By comparing the results of this independent counting with the official results, it is possible to detect the types of fraud that affect turnout. In addition, you can train the Revisor neural network to detect violations of certain types of electoral procedures. The system inputs CCTV footage installed at polling stations by EMBs or independent observers, provided specific requirements are met.

The Revisor system is a trainable neural network, so the customer can teach it to work with different types of voting procedures, elections, and electoral systems in any country. Operation based on video recordings allows results to be obtained immediately after an election and/or months and years later.

**For advice on the feasibility of using the Revisor system at your particular election and for recommendations on setting up cameras, obtaining and storing recordings, please contact:**

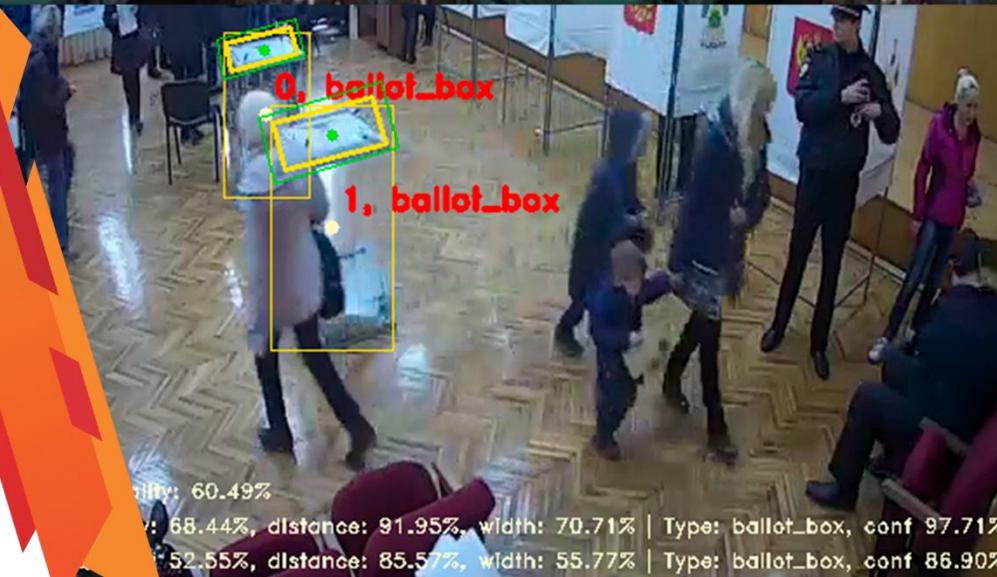
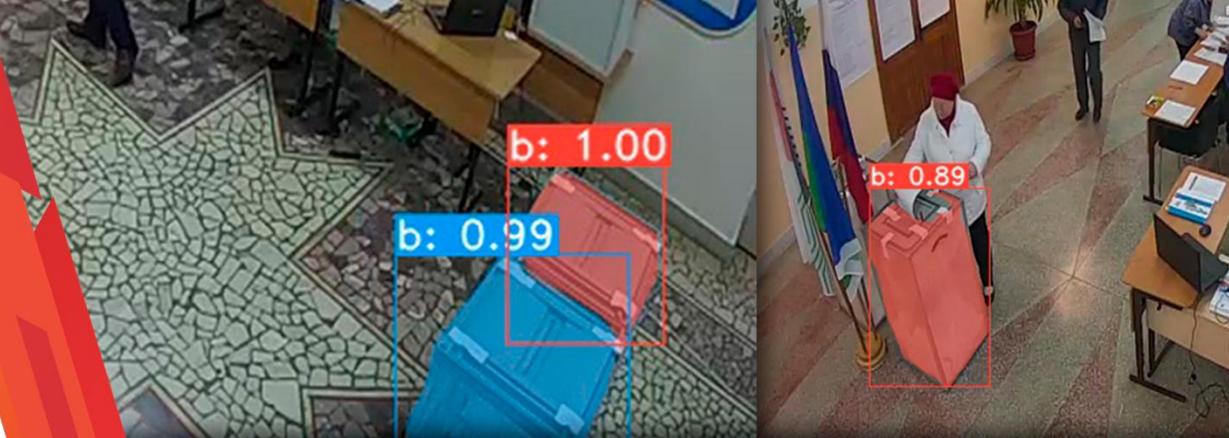
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## What can Revisor do?

### To detect ballot boxes on video records

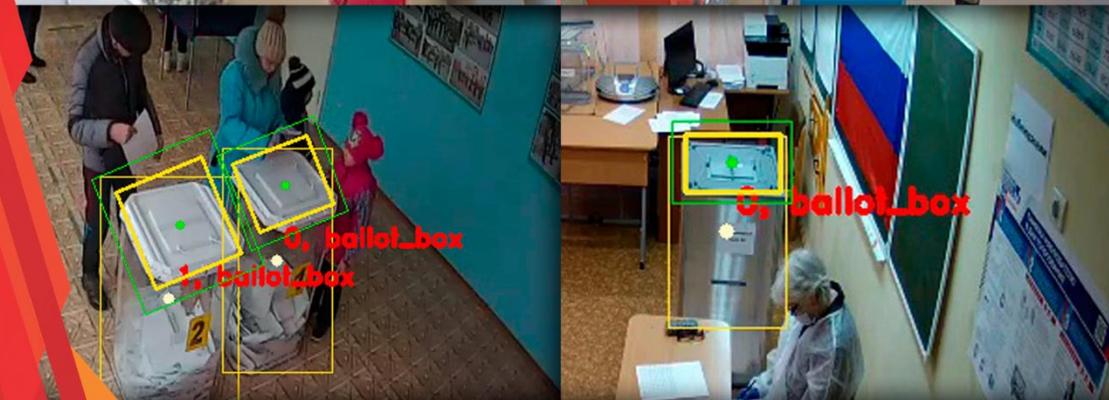
- Detect a ballot box's outline and its top
- Identify the type of the ballot box
- Identify parameters of box location
- Detect some types of violations



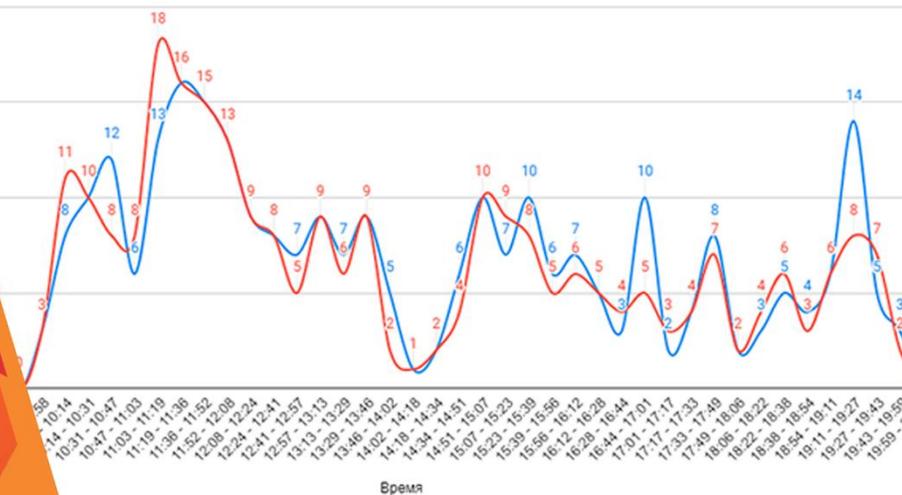
## What can Revisor do?

### To count turnout

- Count the number of voters who cast their ballots
- Identify polling stations with falsified turnout comparing the real turnout to the officially published results
- Draft a formal complaint
- Speed up manual recount



— Реальные голоса — Ревизор



# Development stages

**Stage 1.** December 2019 – July 2020  
Prototype



**Stage 2.** August 2020 – September 2021  
System finalization



**Stage 3.** October 2021 – Current time  
Multiple voting detection module



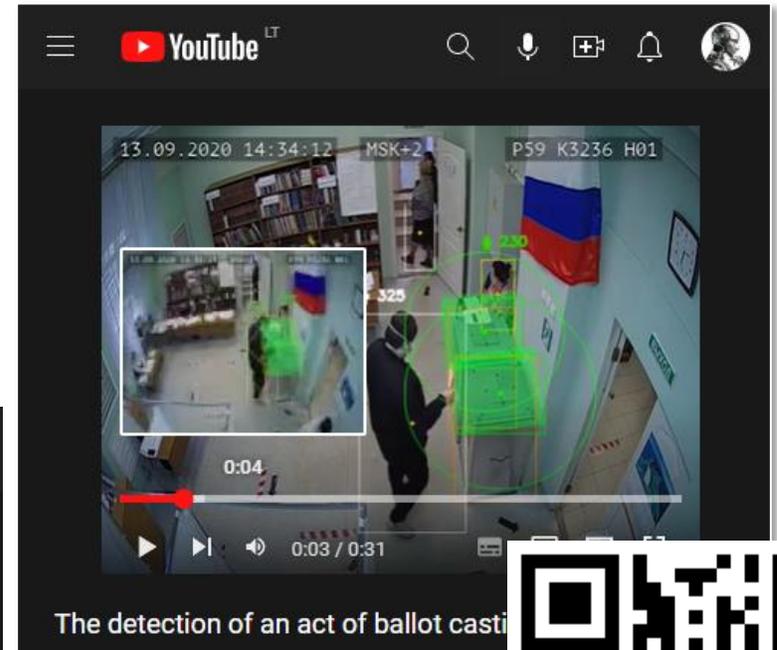
## How does the Revisor work?

Monitoring the poll in Armenia, 2021



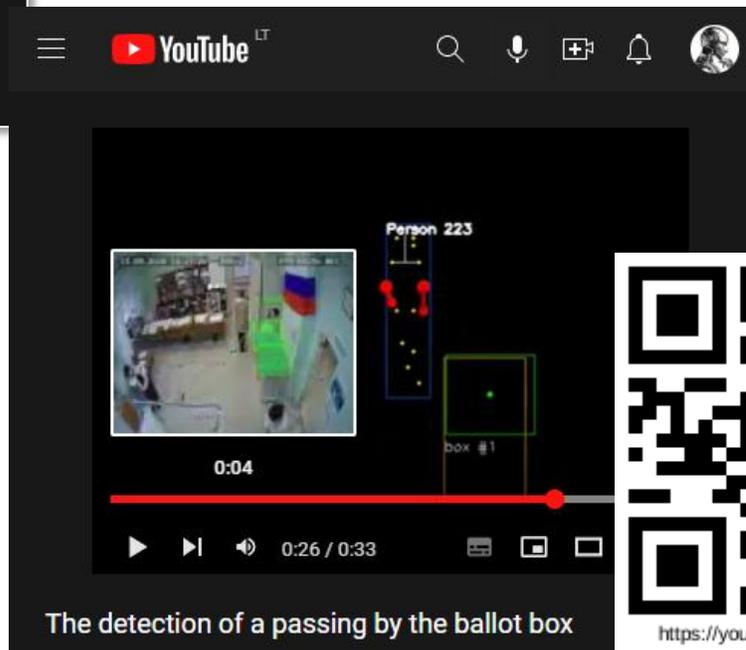
<https://youtu.be/4KiZulc5wk>

Detecting the event of ballot casting, Russia, 2020



<https://youtu.be/LJZySlmXNnM>

Avoiding false triggering of the voter counter, Russia, 2020

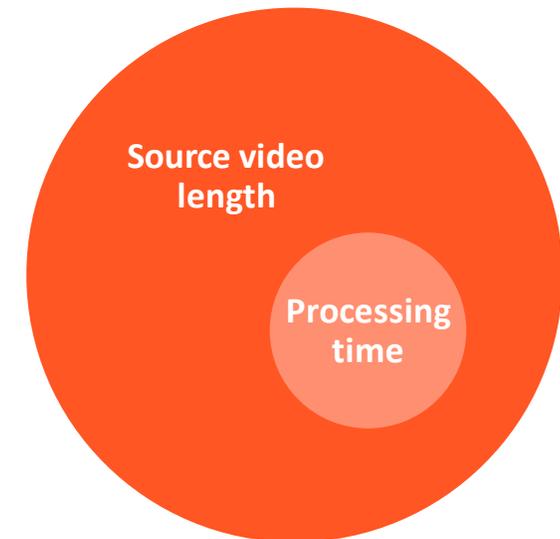


<https://youtu.be/oCbHDNjPguG>

## Specifications

**5x times faster** than real-time

- Works on cloud GPU servers
- Statistics available at the Web-interface
- Automatic system deploying and monitoring



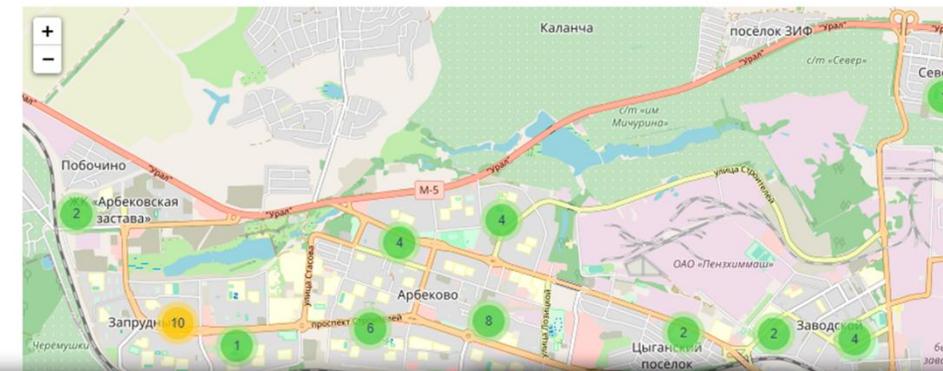
# Results

Подходят  
Участки, на которых камера подходит для подсчета явки  
**221**

Не подходят  
Участки, на которых расположение ящиков не позволяет посчитать явку  
**0**

События  
Общее количество выявленных событий  
**88**

Голосов  
Количество распознанных системой действий как «голос»  
**15391 ± 207**



- The neural network was trained for PS setup of Russia and Armenia
- More than **170 000 hours** were processed from 7050 PS from 4 elections held in these countries
- **2 723 958** acts of ballot casting were detected

Список событий

Подтверждение события:  OFF  
Игнорирован жалоба:  OFF  
Ответ:  OFF

Граница: 10

Дата	Время	Регион	Участок	Камера	Вид
09-13	12:59	58	13	1	
09-13	12:58	58	7	1	
09-13	12:57	58	420	1	
09-13	12:54	58	4	1	
09-13	12:53	58	67	2	
09-13	12:51	58	36	1	
09-13	12:49	58	81	1	
09-13	12:48	58	72	1	
09-13	12:47	58	39	1	
09-13	12:45	58	60	2	

но с 21 по 30 из 88 записей

Не видно ящики  
Регион 58, УИК 4

Подтверждение события

Данные: Фото

Отбавлять распознавания ящиков:  ON

Камера #1:

Камера #2:

Плохо видно ящики  
Регион 58, УИК 886

Подтверждение события

Данные: Фото

Отбавлять распознавания ящиков:  ON

Камера #1:

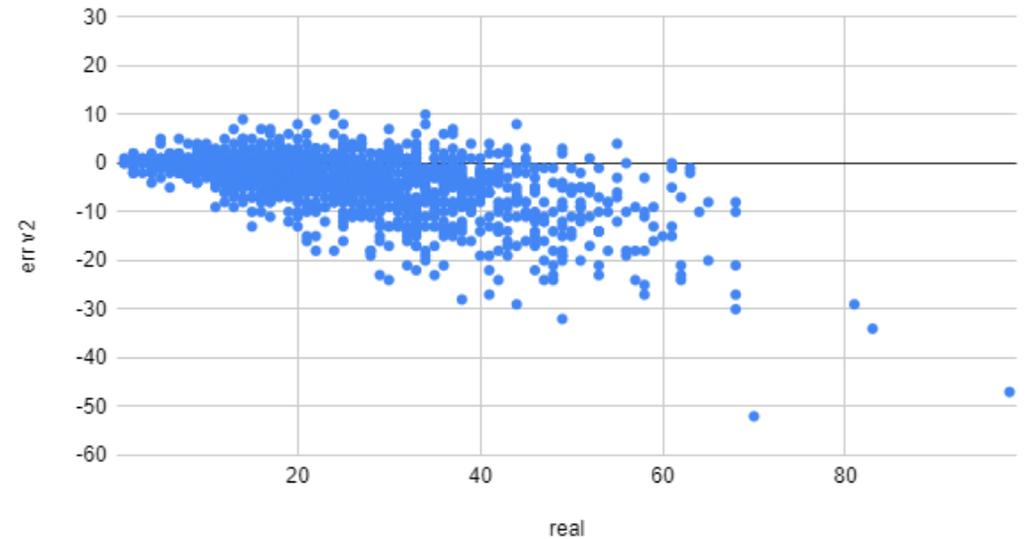
Камера #2:

## Accuracy

**Revisor** trained on 137 209 actions at 1 134 stations

	%
Mean error (MAPE)	16.70
Median error	13.85

The error can be reduced to **1-5%** if it is possible to change the camera layout at station



### Errors distribution

X – number of real votes in the video

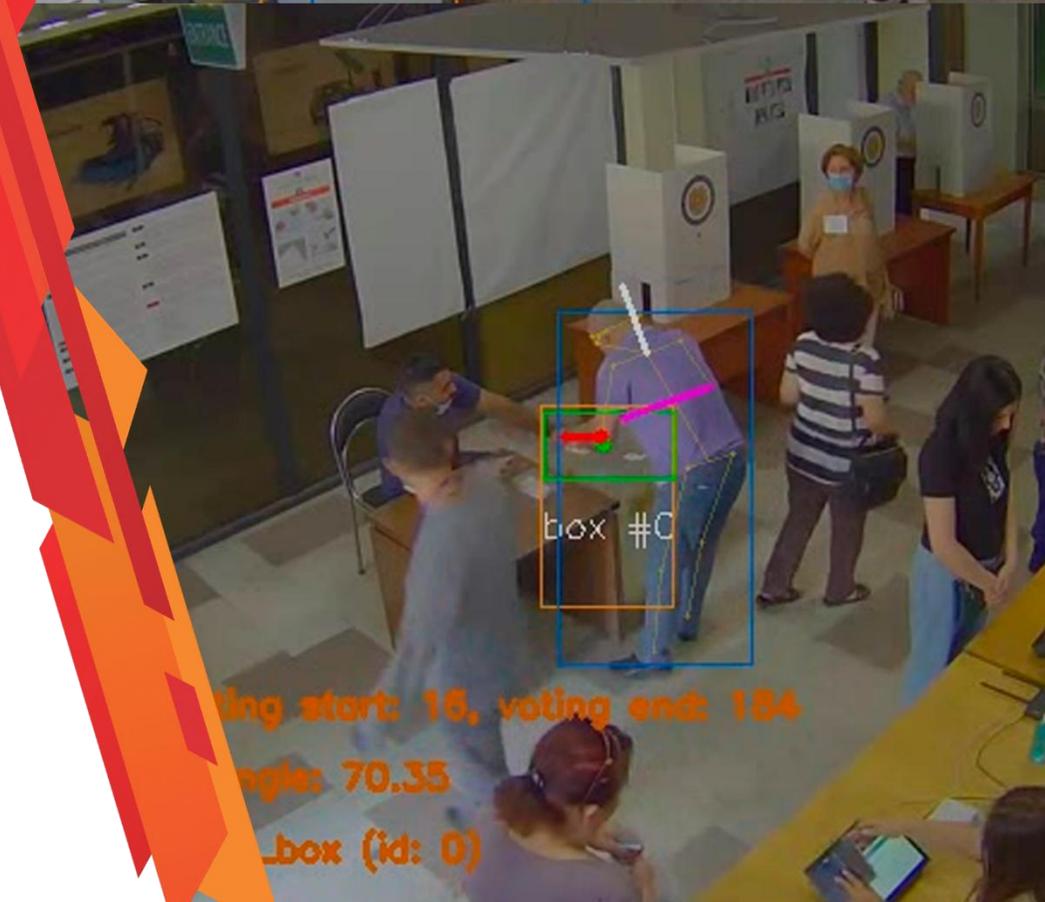
Y – error value

## Voting automation

### Revisor will allow you

- Exclude the human factor
- Free up thousands of hours of monotonous work
- Provide people with a transparent voting monitoring tool

The Revisor is easily customizable for your needs!



## Success stories

### 17 million stuffed ballots

At the request of Meduza's investigative team, Revisor processed more than 1 million hours of video records from Duma elections held in 2021.

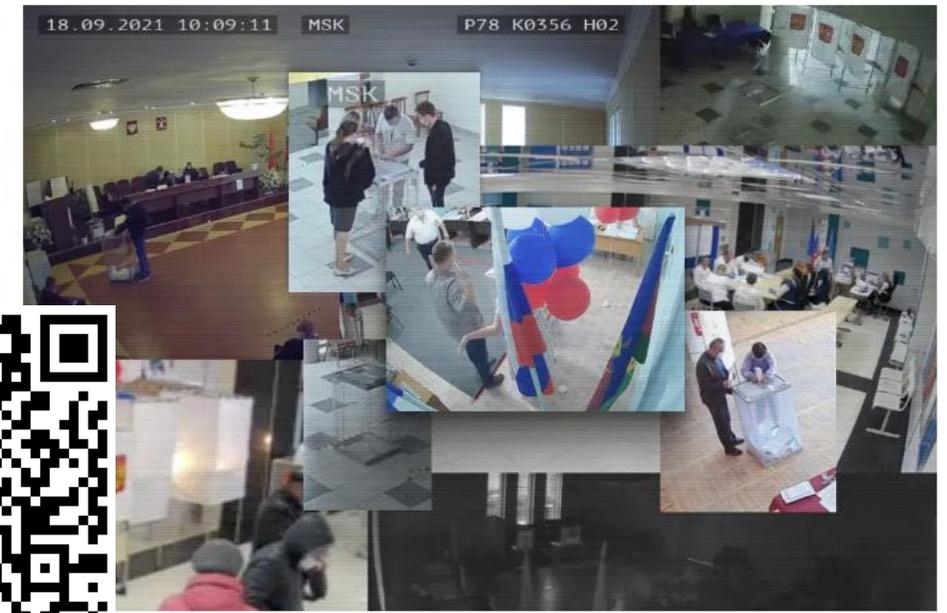
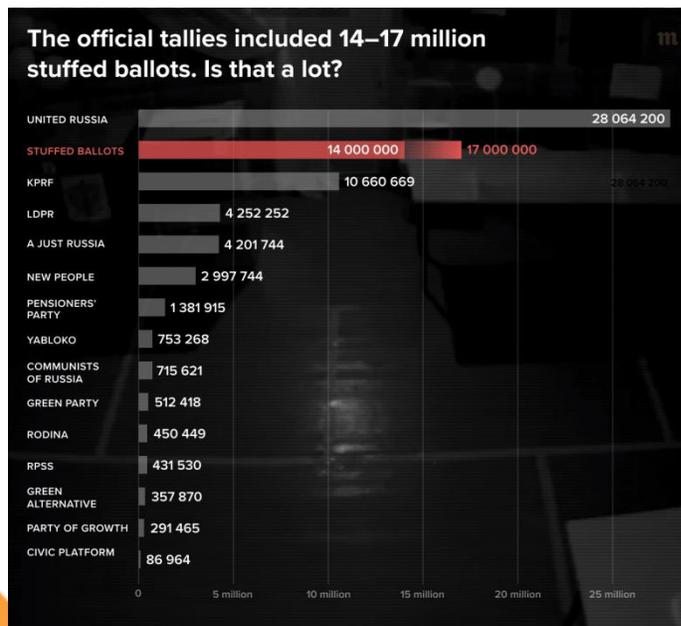
The revelation of 30% of falsified votes in the provided sample led the journalists to the conclusion regarding the whole country.



#### STORIES

**17.1 million stuffed ballots** The elected officials who paved the way for Russia's invasion of Ukraine weren't really elected, according to video records obtained by Meduza

8:52 am, August 12, 2022 · Source: [Meduza](#) ·



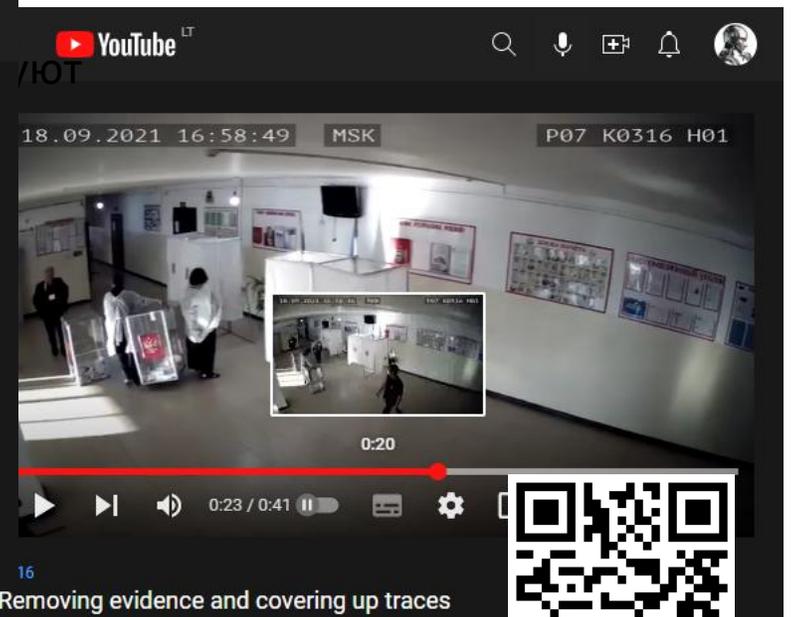
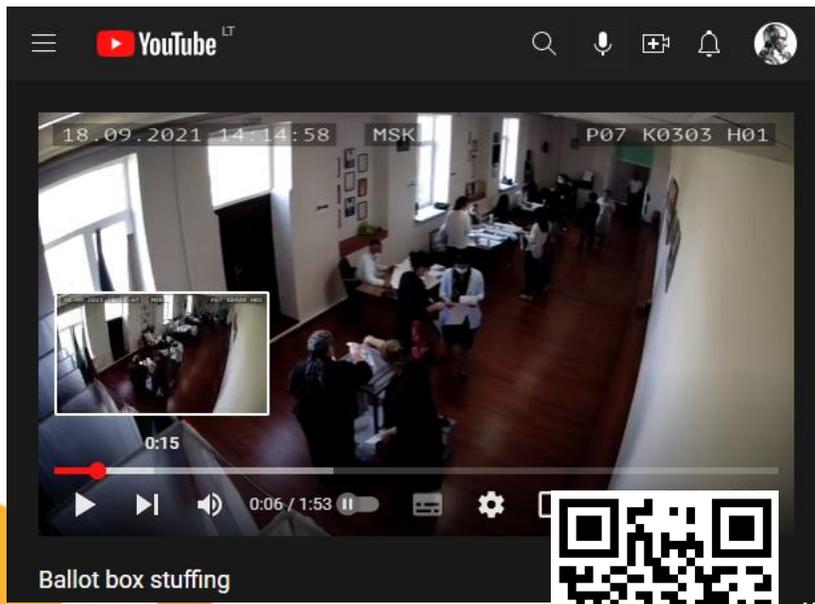
<https://meduza.io/en/features/2022/08/12/17-1-million-stuffed-ballots>

## Success stories

### AI suspicions confirmed by humans

Revisor detects the discrepancy between the official and actual turnout at the polling stations and reports it to the users. It's the users' responsibility to resolve what particular crime led to the observed anomaly.

Occasionally, the crimes themselves are caught on video. So, when users watch the records indicated by Revisor as suspicious it gives us the ideas on how the culprits committed the crimes and formed the discrepancy.



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