

# Proof Mode Verifiable Visual Evidence from smartphones



**WITNESS**

SEE IT

FILM IT

CHANGE IT



GUARDIAN  
PROJECT

<https://guardianproject.info>

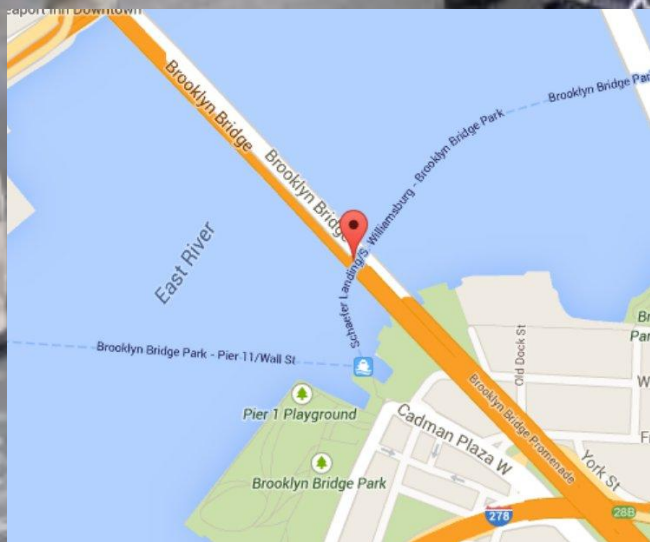


**VISUAL DATA ONLY**



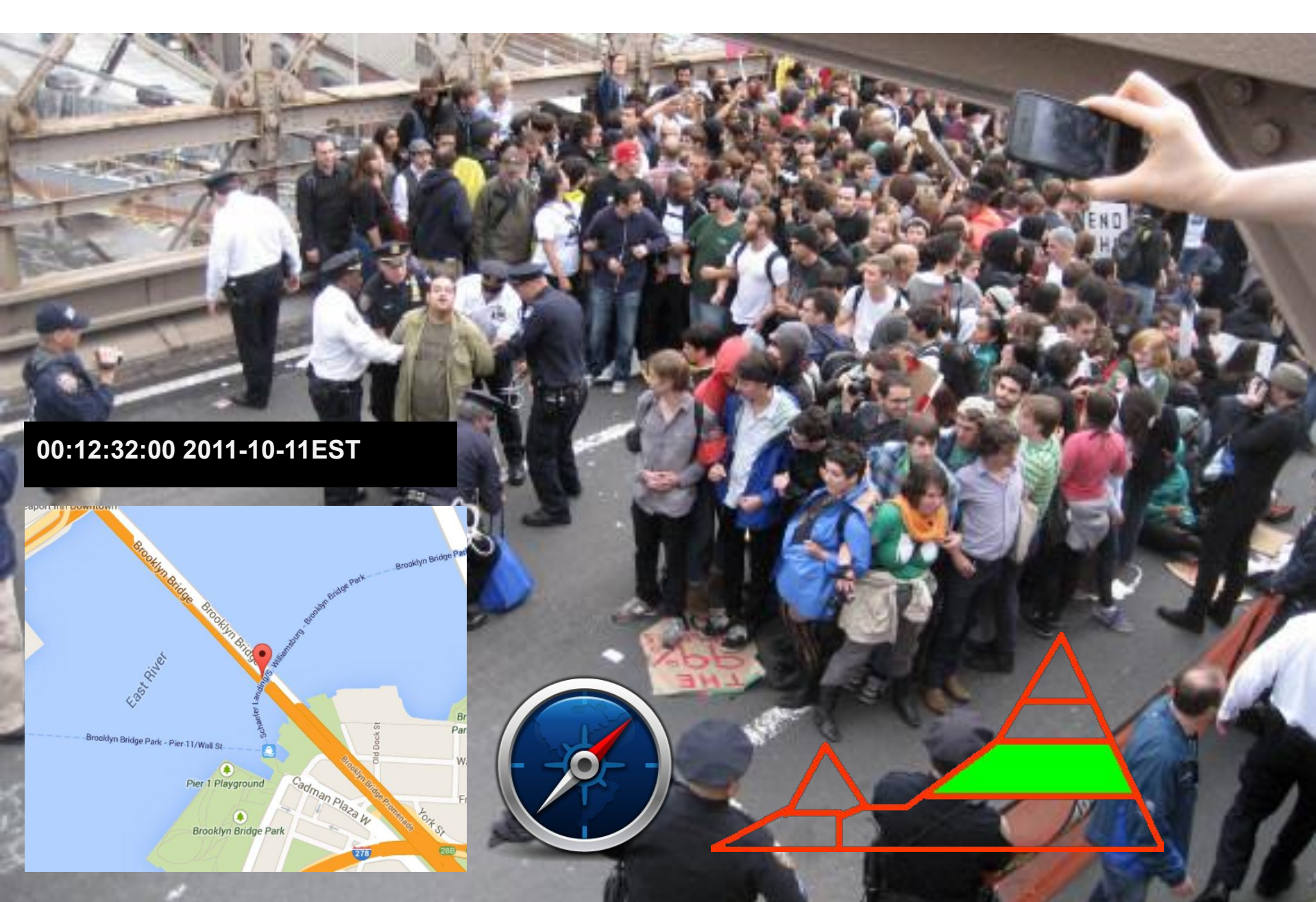


00:12:32:00 2011-10-11EST



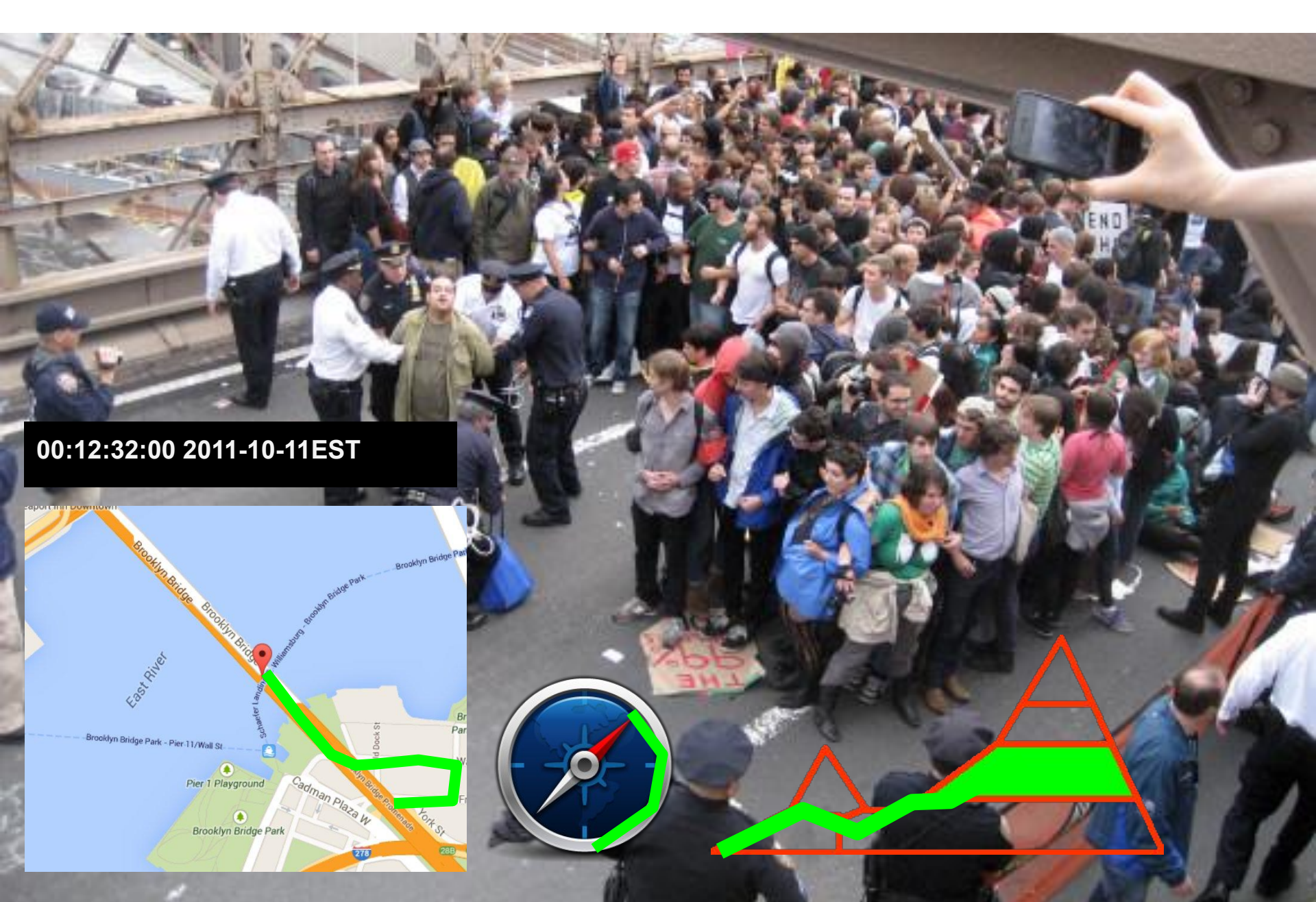
LOCATION + TIMESTAMP



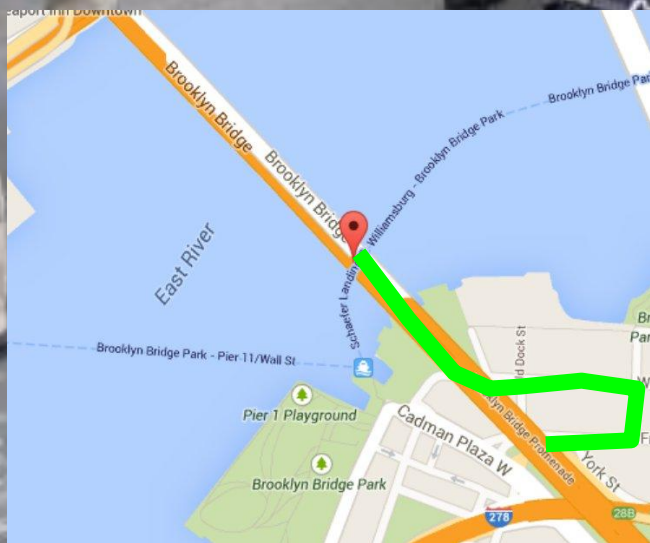


+ BEARING & ALTITUDE





00:12:32:00 2011-10-11EST



+ MOVEMENT OVER TIME

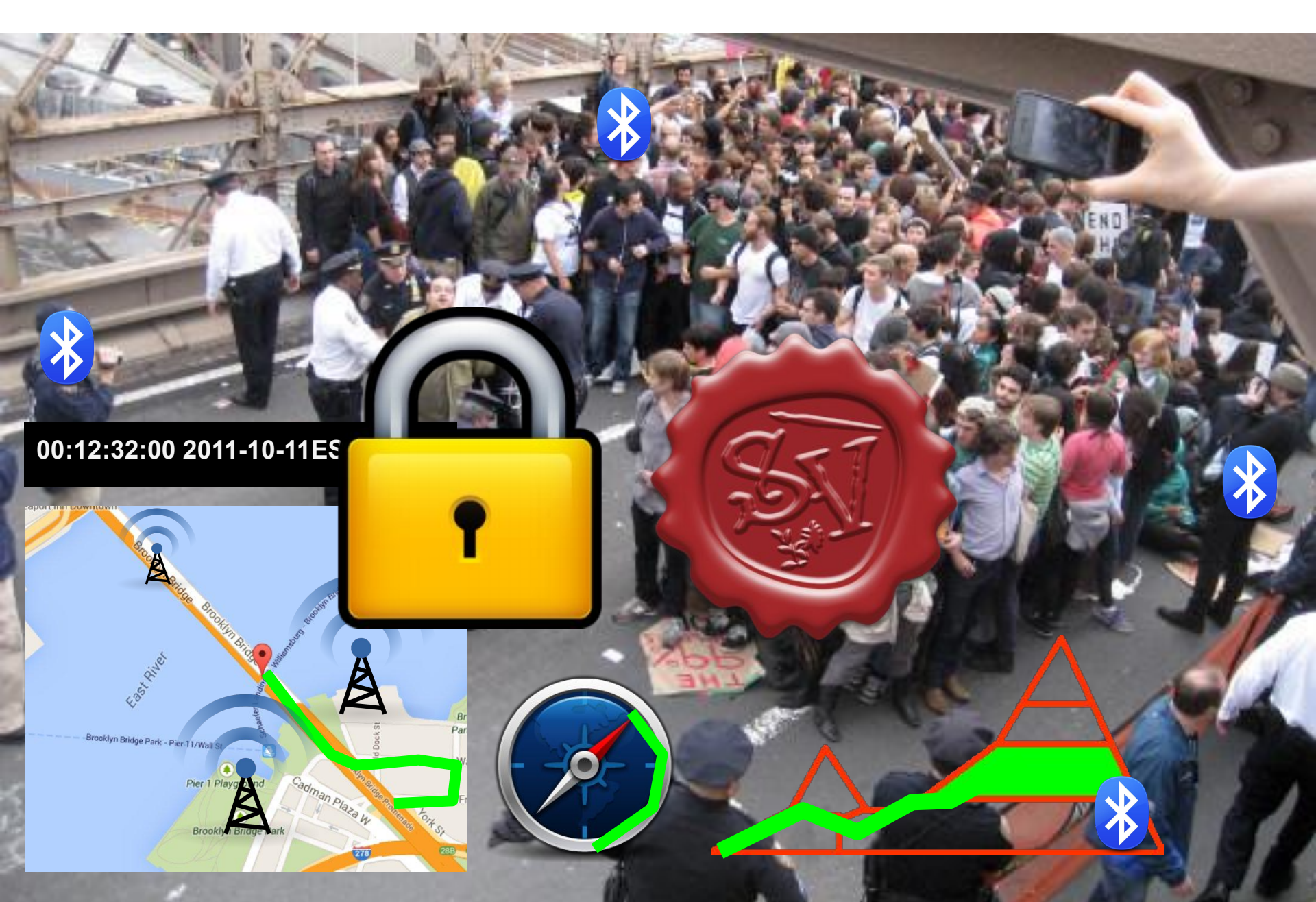




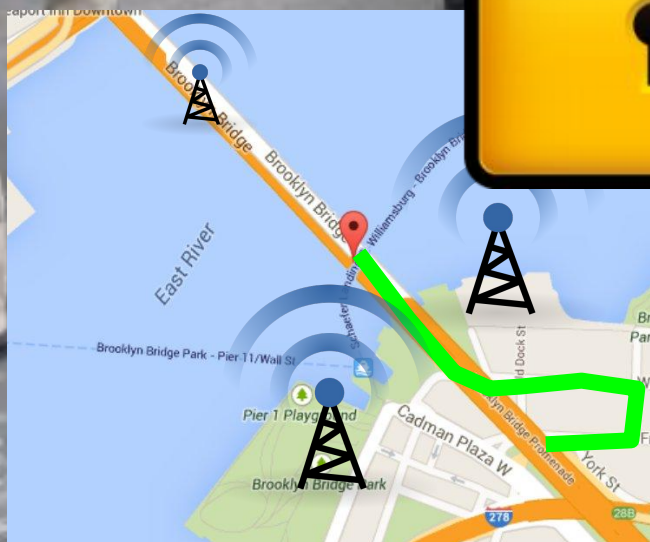
00:12:32:00 2011-10-11EST

+ NEARBY NETWORK INFO



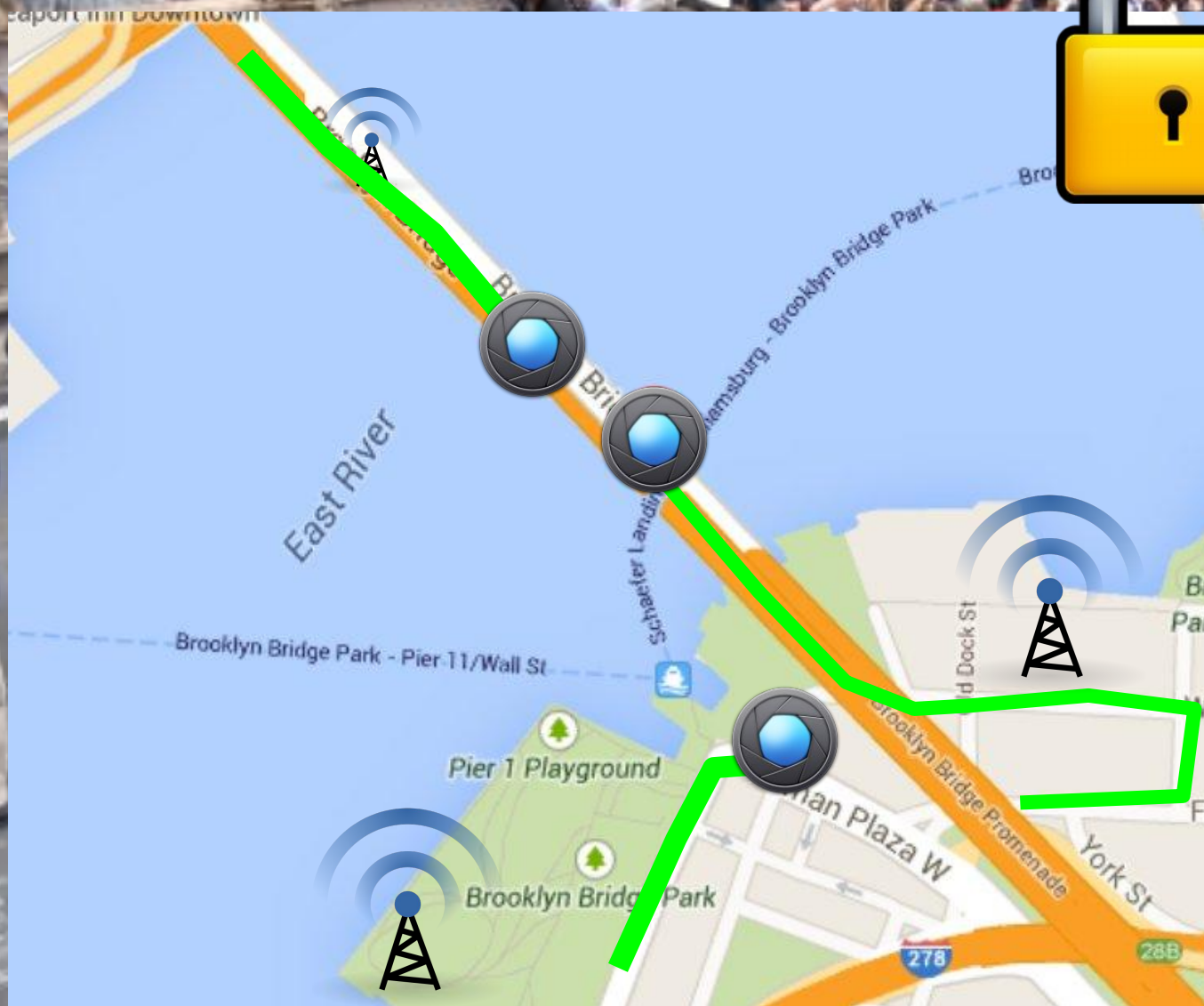


00:12:32:00 2011-10-11ES



+ DIGITALLY SIGNED AND SECURED

00:12:32:00 2011-10-11EST

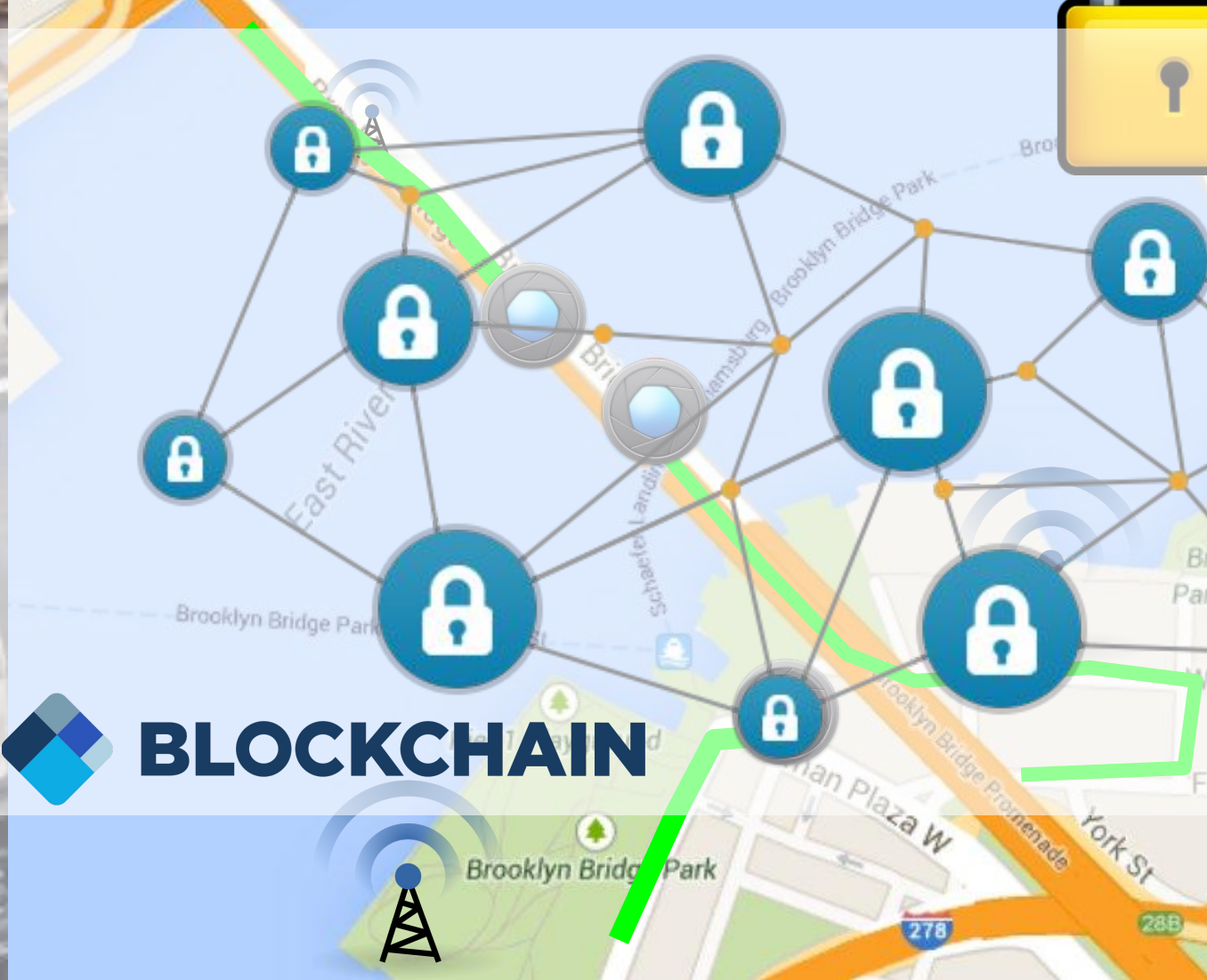


+ MULTIPLE VIEWPOINTS OF PROOF



00:12:32:00 2011-10-11EST

Report from Downtown



+ DECENTRALIZED SHARING & NOTARIZATION

Prototype: (Under Construction)

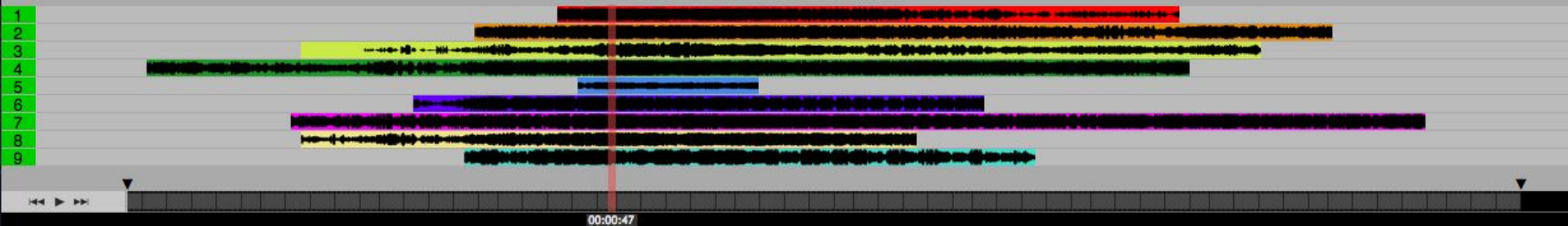
# The Rashomon Project:

An Online Toolkit for Assembling Multi-Perspective Chronologies

A CITRIS Data & Democracy Project

[Source Code](#) [About Rashomon](#)

TIMELINE UC Davis - Nov 18 2011



# MULTI VIEW TIMELINE SYNC





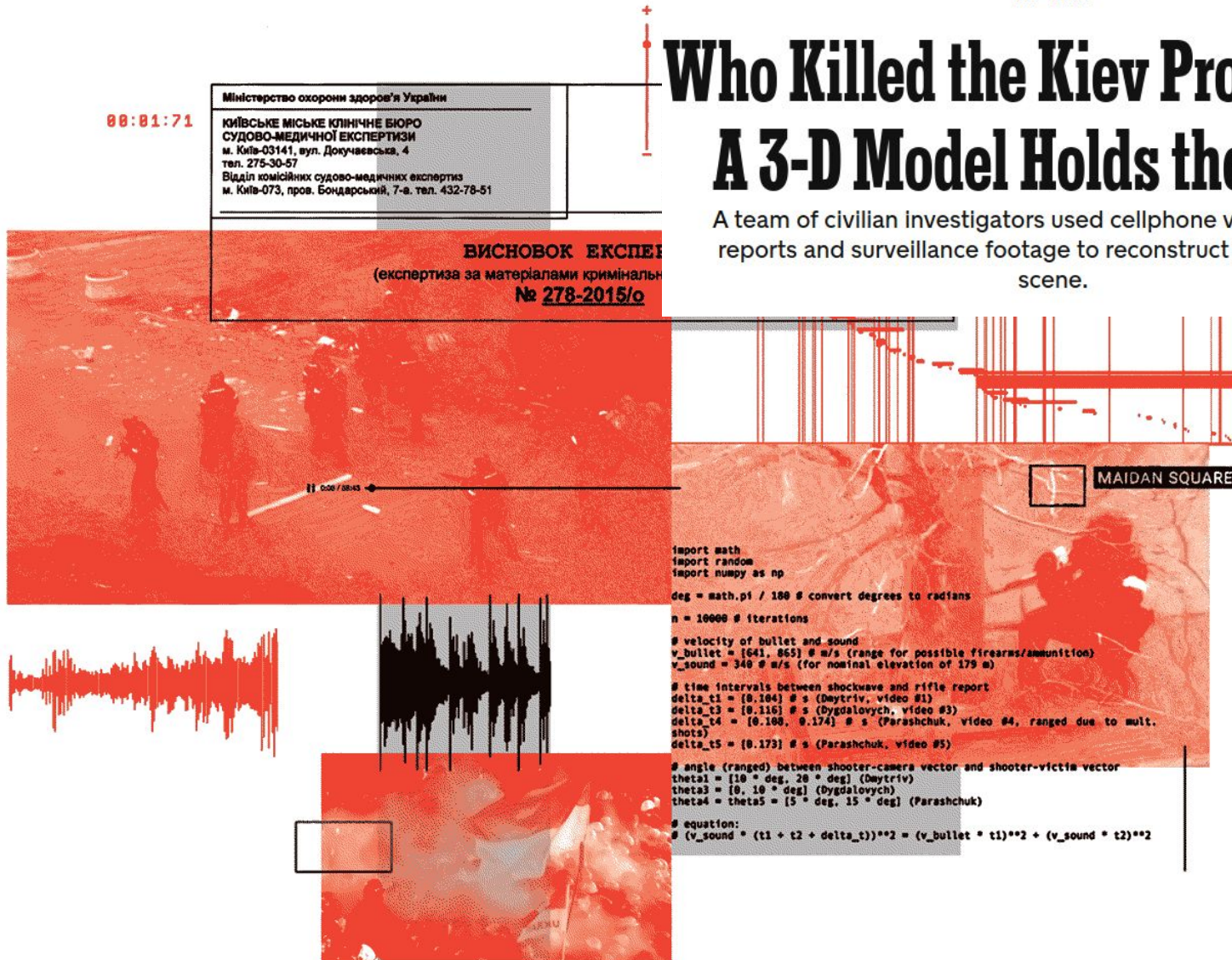
DATE OF INCIDENT 14.07.2018	LOCATION South Shore, Chicago	FORUMS Exhibition
IN PARTNERSHIP WITH Invisible Institute	When police shot Harith Augustus to death not far from his South Shore barbershop, the Chicago police called it a legitimate 'split-second' decision. We unpacked that split second at six different time scales, from milliseconds to years. Our investigation uncovered multiple violations by Chicago police, including, not for the first time, withholding critical video evidence from the public.	

## 3D SPATIALIZATION

# Who Killed the Kiev Protesters?

## A 3-D Model Holds the Clues

A team of civilian investigators used cellphone videos, autopsy reports and surveillance footage to reconstruct a virtual crime scene.



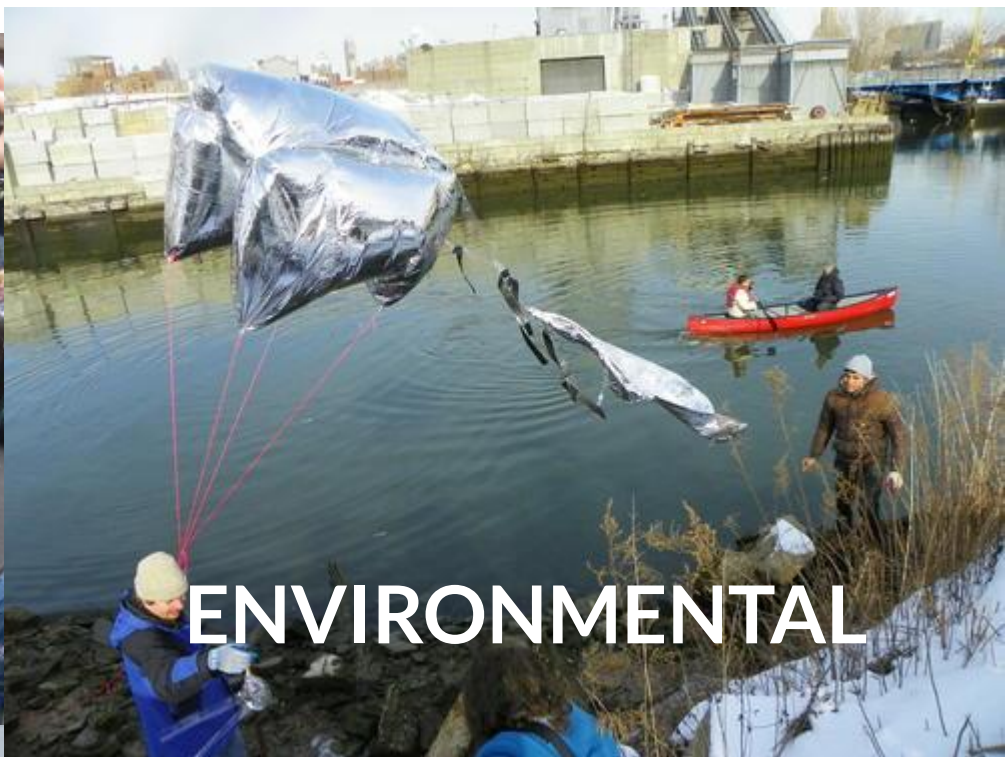
<https://www.nytimes.com/2018/05/30/magazine/ukraine-protest-video.html>

# QUERYING MASSIVE MEDIA SETS





ACTIVISM



ENVIRONMENTAL



WORKER RIGHTS



INSURANCE

**SATIRE OR PARODY**

No intention to cause harm but has potential to fool

**MISLEADING CONTENT**

Misleading use of information to frame an issue or individual

**IMPOSTER CONTENT**

When genuine sources are impersonated

**FABRICATED CONTENT**

New content is 100% false, designed to deceive and do harm

**FALSE CONNECTION**

When headlines, visuals or captions don't support the content

**FALSE CONTEXT**

When genuine content is shared with false contextual information

**MANIPULATED CONTENT**

When genuine information or imagery is manipulated to deceive

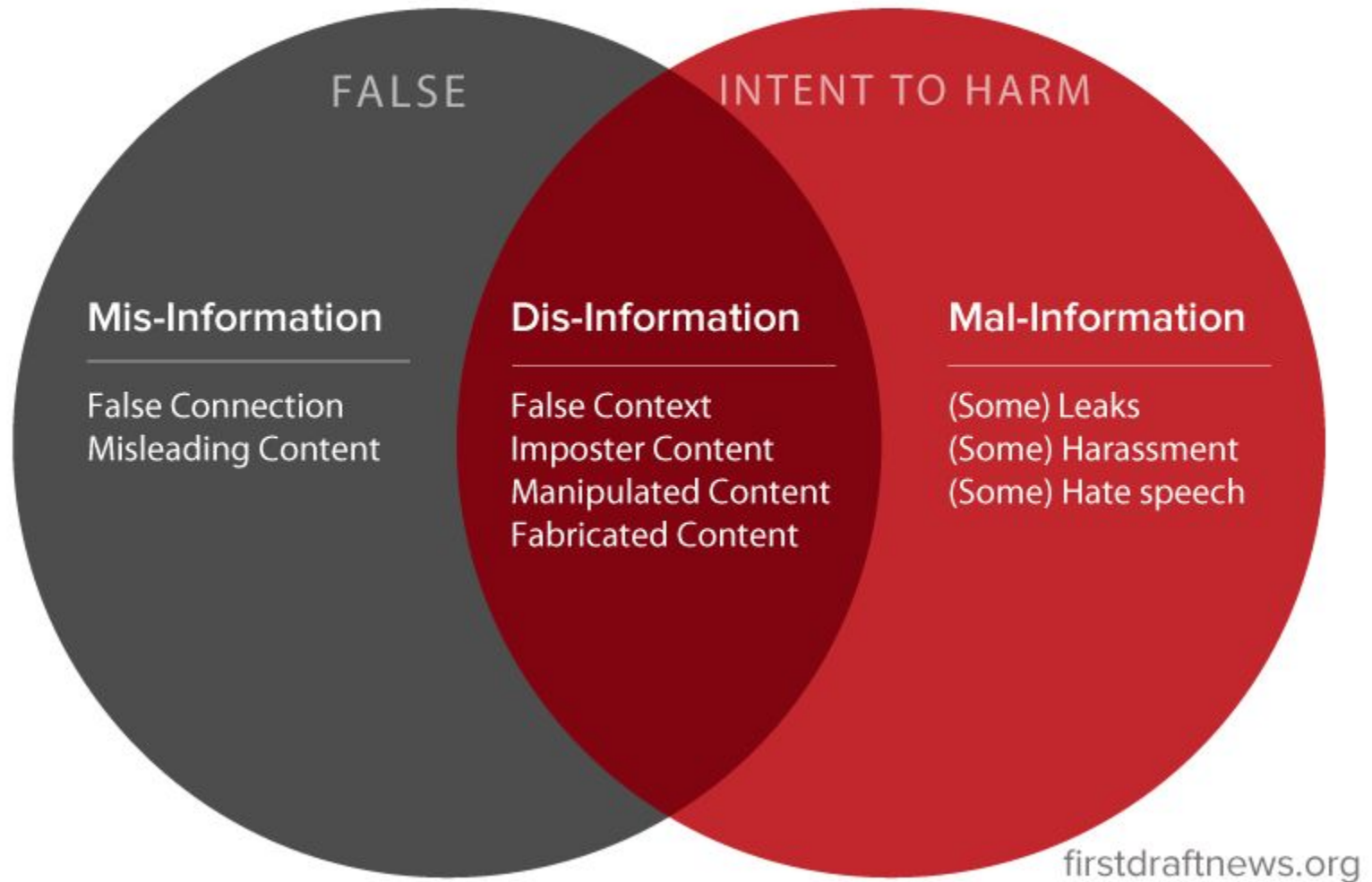
Claire Wardle, PhD and Hossein Derakhshan, with research support from Anne Burns and Nic Dias

<https://shorensteincenter.org/information-disorder-framework-for-research-and-policymaking/>

(GREEN BOXES SHOW PROOF MODE APPLICATIONS)



# INFORMATION DISORDER

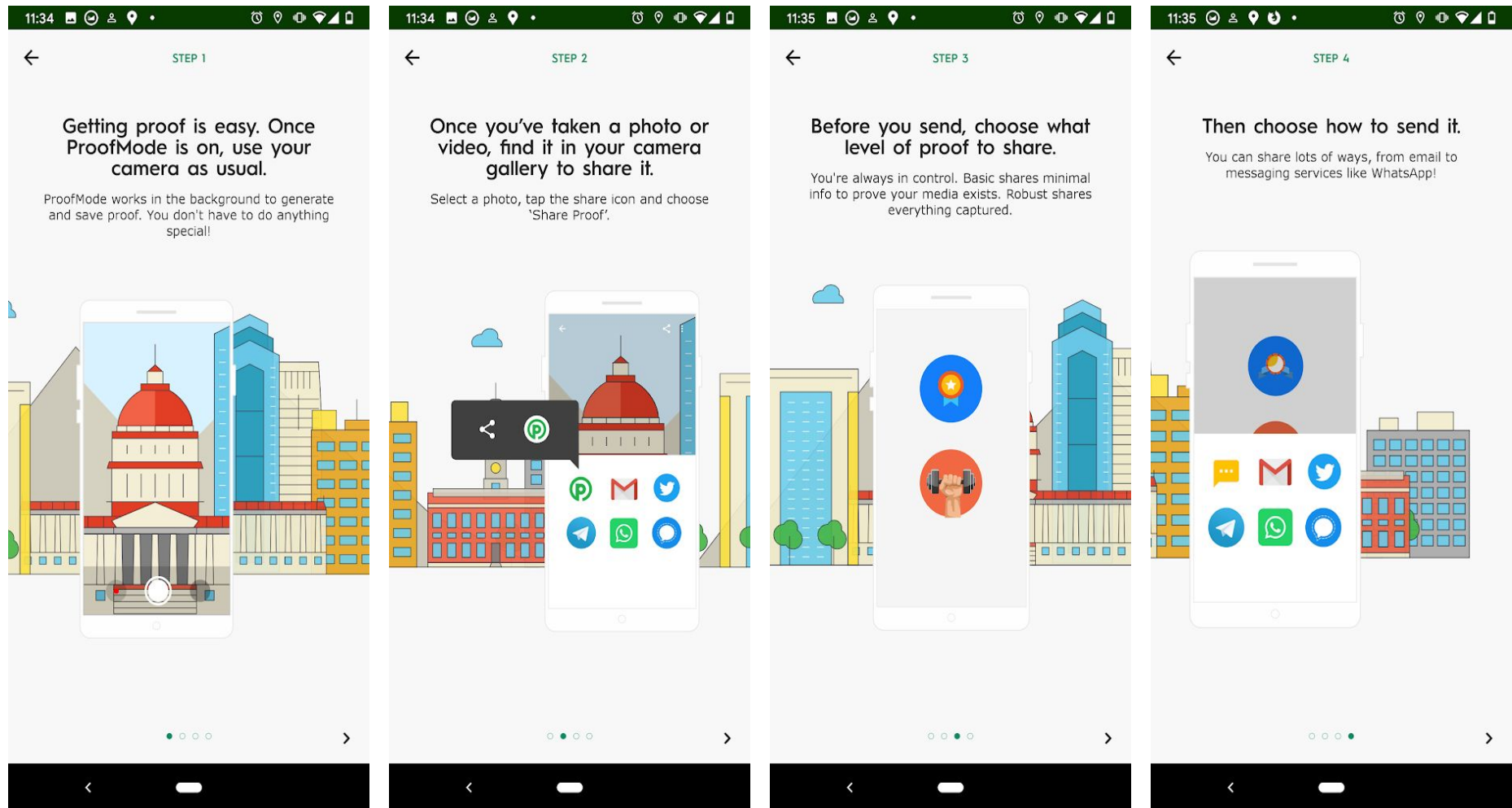


Claire Wardle, PhD and Hossein Derakhshan, with research support from Anne Burns and Nic Dias  
<https://shorensteincenter.org/information-disorder-framework-for-research-and-policymaking/>

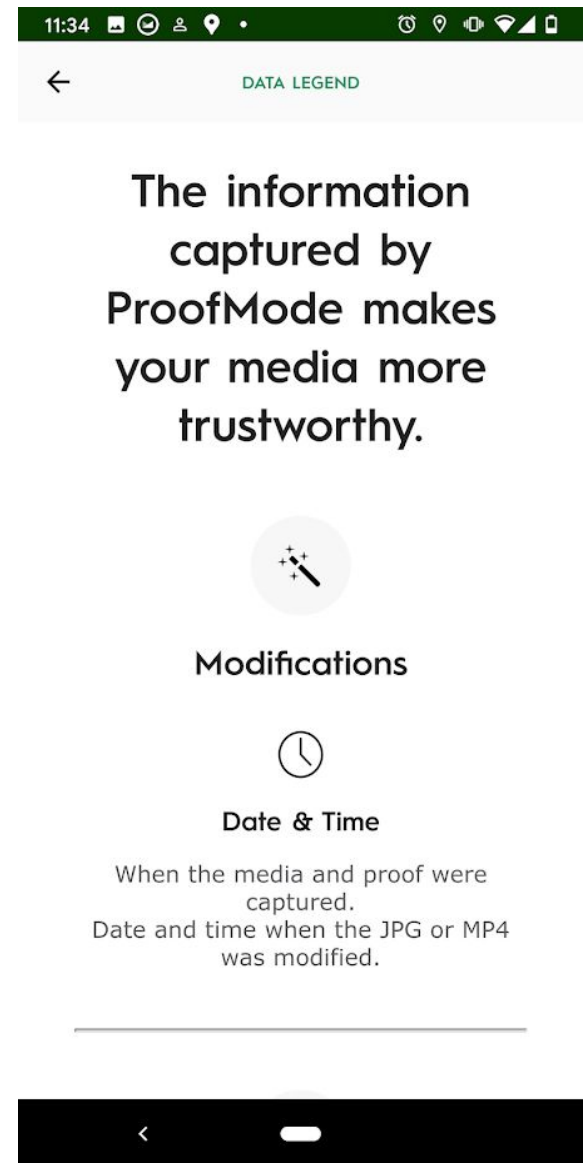
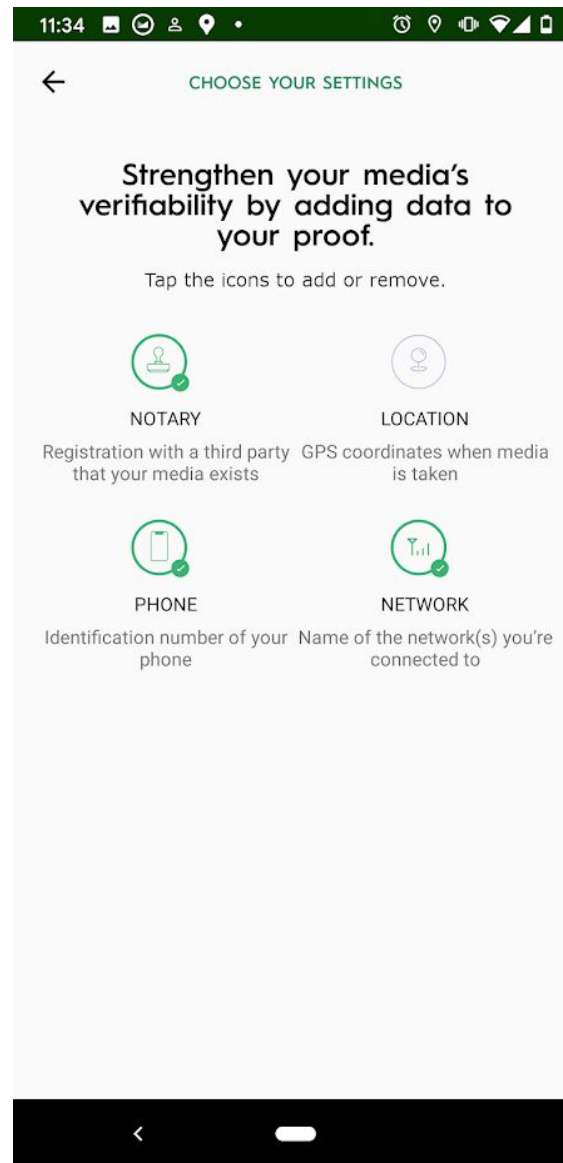
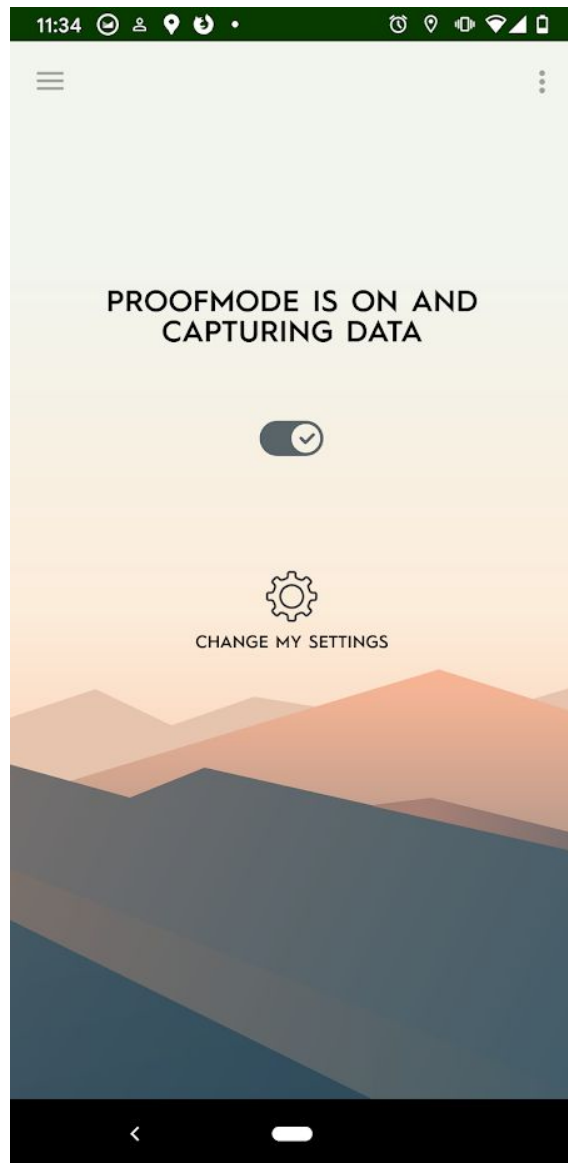
# What is ProofMode?

With minimal user interaction, ProofMode enhances the evidentiary value of media shot on a mobile phone. It generates cryptographic fingerprints and sensor evidence for any photo or video so the proof is there, ready to share, when needed, and provides a simple way for individuals to choose to share rich metadata, signed and hashed media with one-click from within their gallery.





4 steps to Proof!

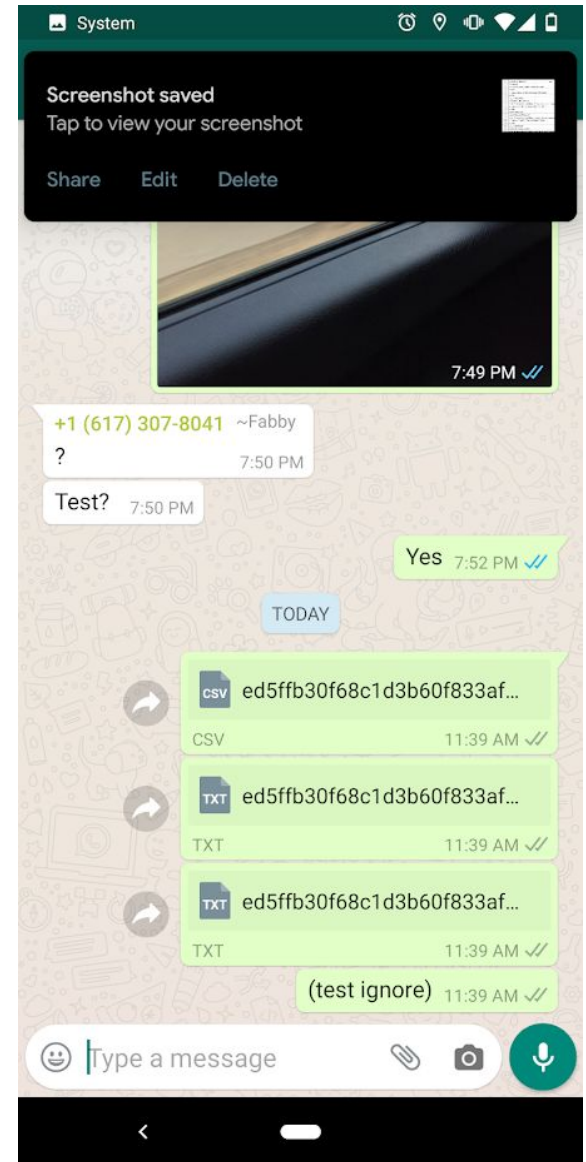
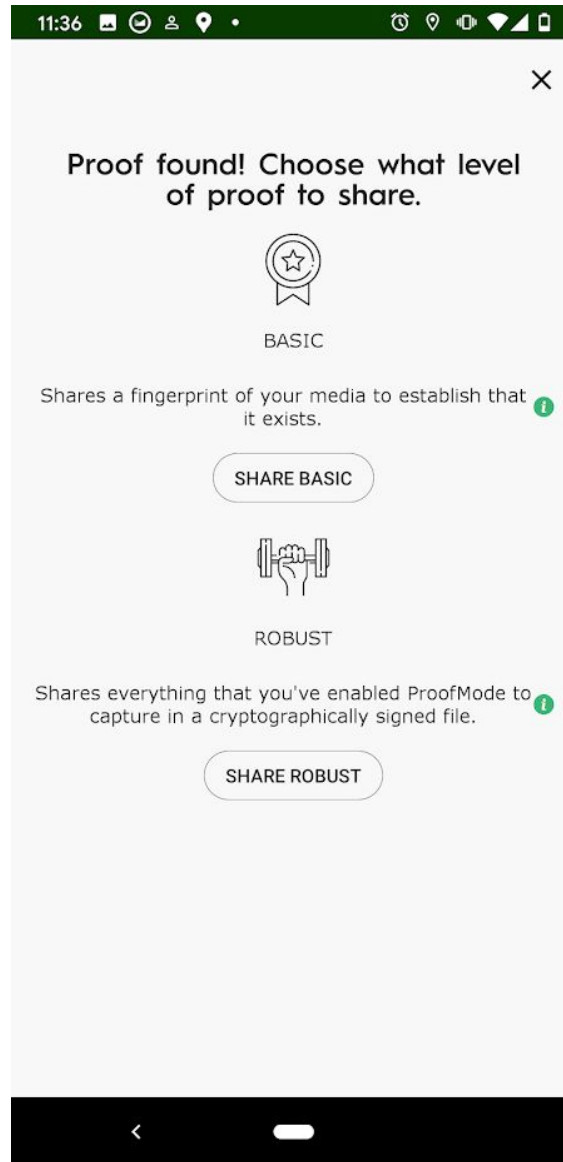
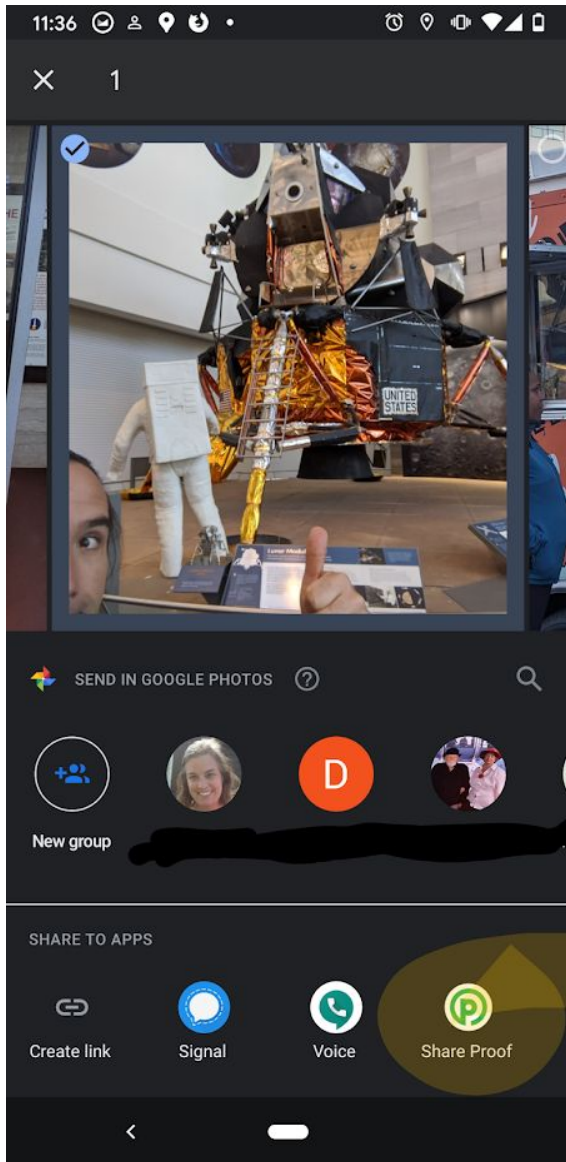


Proof mode simple experience



# Sharing from ProofMode?

The data created by ProofMode can be **easily shared** through a “Share Proof” button in your phone’s standard photo album to anyone you choose over email or a messaging app, or uploaded to a cloud service or reporting platform.

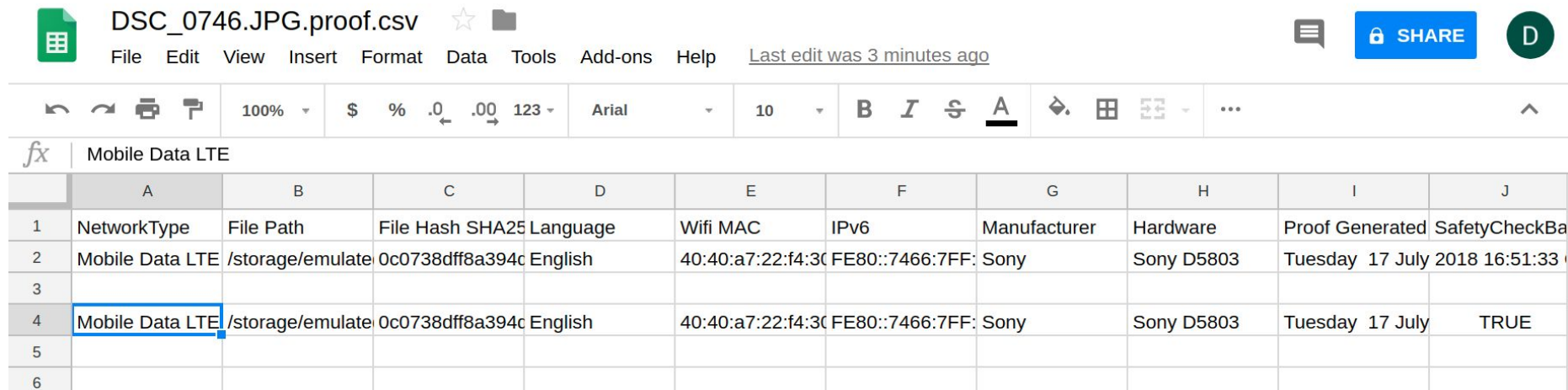


3 steps to share!



# Sensor Data from ProofMode?

**Sensor data is saved in CSV file** that can be easily parsed and imported by existing tools for analysis and visualization.



The screenshot shows a Google Sheets interface with a CSV file named 'DSC\_0746.JPG.proof.csv' open. The file was last edited 3 minutes ago. The spreadsheet has a menu bar (File, Edit, View, Insert, Format, Data, Tools, Add-ons, Help) and a toolbar with various editing and formatting options. The data is organized into columns A through J. The first row (row 1) contains headers: NetworkType, File Path, File Hash SHA256, Language, Wifi MAC, IPv6, Manufacturer, Hardware, Proof Generated, and SafetyCheckBa. The second row (row 2) contains data for 'Mobile Data LTE': /storage/emulate, 0c0738dff8a394c, English, 40:40:a7:22:f4:30, FE80::7466:7FF, Sony, Sony D5803, Tuesday 17 July 2018 16:51:33, and a partially visible 'SafetyCheckBa'. The third row (row 3) is empty. The fourth row (row 4) contains data for 'Mobile Data LTE': /storage/emulate, 0c0738dff8a394c, English, 40:40:a7:22:f4:30, FE80::7466:7FF, Sony, Sony D5803, Tuesday 17 July, and TRUE. The fifth row (row 5) is empty. The sixth row (row 6) is empty.

	A	B	C	D	E	F	G	H	I	J
1	NetworkType	File Path	File Hash SHA256	Language	Wifi MAC	IPv6	Manufacturer	Hardware	Proof Generated	SafetyCheckBa
2	Mobile Data LTE	/storage/emulate	0c0738dff8a394c	English	40:40:a7:22:f4:30	FE80::7466:7FF	Sony	Sony D5803	Tuesday 17 July 2018 16:51:33	
3										
4	Mobile Data LTE	/storage/emulate	0c0738dff8a394c	English	40:40:a7:22:f4:30	FE80::7466:7FF	Sony	Sony D5803	Tuesday 17 July	TRUE
5										
6										

**Check out our detailed legend (a work in progress!) here:**  
**<https://docs.google.com/spreadsheets/d/1L5tD6HtBNkZObaZnOd2R2zVIN0z9F1h-0d7W6Bosh6o/edit?usp=sharing>**





# ProofMode Specs

- Can run in the background **without noticeable battery, storage or network impact.**
- Uses PGP cryptography and Google SafetyNet API for **identity and data integrity verification.**
- Your original media is not modified - all proof metadata is stored in separate files (but see note about Signal sharing).
- Automatically **creates Sha-256 hash** for all media files - used for data integrity verification.
- Both the media files and “proof” metadata are PGP-signed for verification purposes

# ProofMode Software Library



<https://open-archive.org/Save-Launch/>

OpenArchive launches new app Save to help journalists and human rights advocates protect and preserve highly sensitive digital media.



## Tella – Document & Protect

Tella is a documentation app for Android.

Specifically designed to protect users in repressive environments, it is used by activists, journalists, and civil society groups to document human rights violations, corruption, or electoral fraud. Tella **encrypts and hides** sensitive material on your device, and **quickly deletes** it in emergency situations; and groups and organizations can deploy it among their members to **collect data** for research, advocacy, or legal proceedings.

- Open-Source, Freely Licensed; Available on Android, soon iOS, for integration into any third-party app



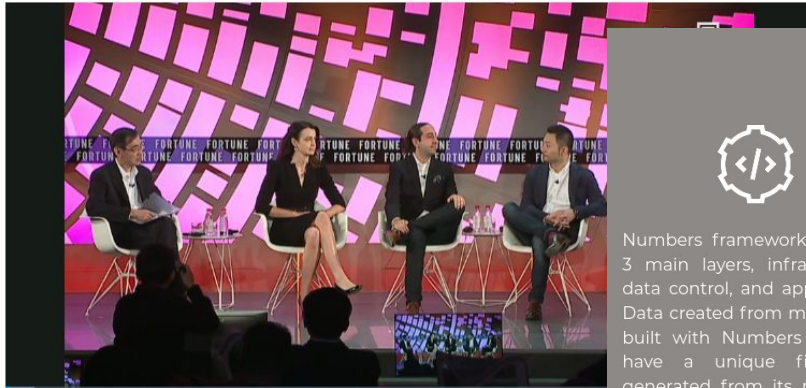
# ProofMode Software Library

CONFERENCES • GLOBAL TECH FORUM

## Project Starling Uses Blockchain to Ensure We Never Forget

BY EAMON BARRETT

November 7, 2019 8:37 PM EST



Numbers framework contains 3 main layers, infrastructure, data control, and applications. Data created from mobile App built with Numbers SDK will have a unique fingerprint generated from its metadata, such as GPS location, timestamp, network provider, mobile model, etc.

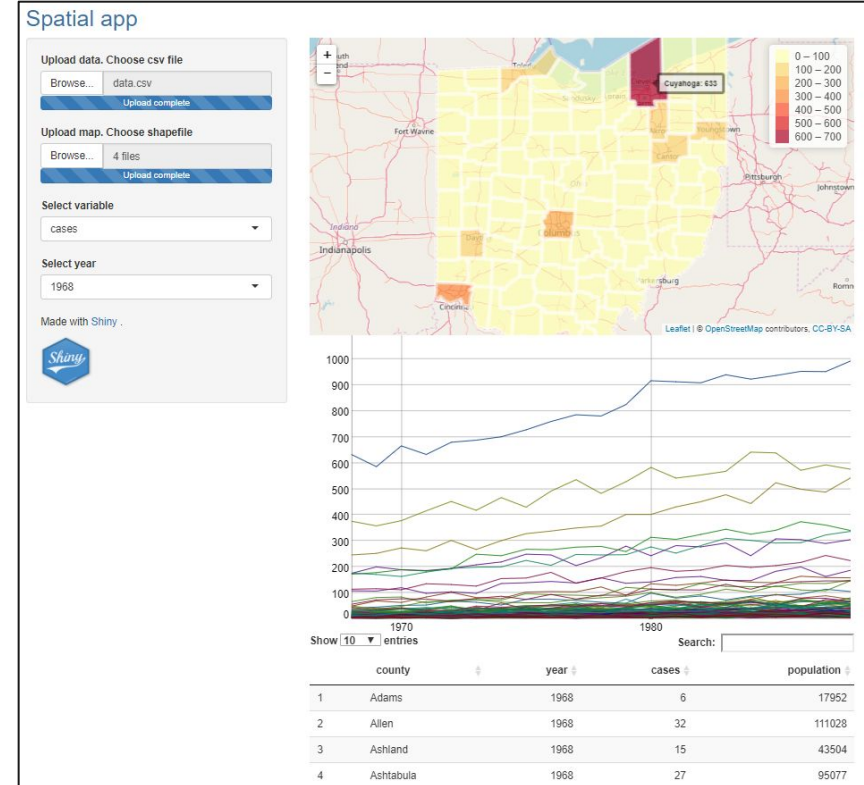
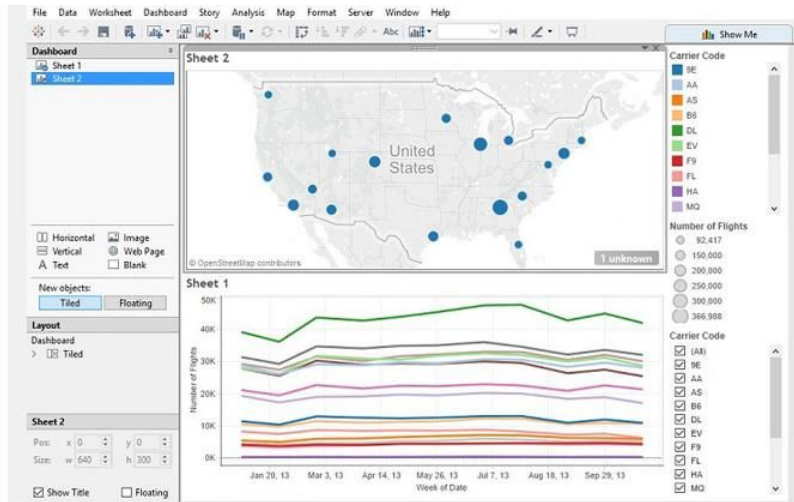
### FRAMEWORK STACK

Application	Trustable Photo-sharing	Data Wallet	Digital Fingerprint System	
Data Control	Distributed Database	Data Pipeline Framework	Privacy-preserving Computation	
Infrastructure	Blockchain	Proof Generator	Decentralize Storage	Digital Property System

<https://numbersprotocol.io>

- Open-Source, Freely Licensed; Available on Android, soon iOS, for integration into any third-party app

# ProofMode Data Processing



- Proof data easily parsed and verified with command lines tools, any spreadsheet application, or more advanced visualization applications like Tableau and RStudio / ShinyApps





# Learn more at:

<https://github.com/guardianproject/proofmode>

<https://blog.witness.org/2017/04/proofmode-helping-prove-human-rights-abuses-world/>

and

<https://guardianproject.info/apps/org.witness.proofmode/>

Contact:

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[nathan@guardianproject.info](mailto:nathan@guardianproject.info)