Crowdsourced Fact-Checking for Misinformation: A Journey Through Nine Years of Research (2018–2026)

Michael Soprano, Kevin Roitero, Eddy Maddalena, Stefano Mizzaro

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Fact-Checking at Scale

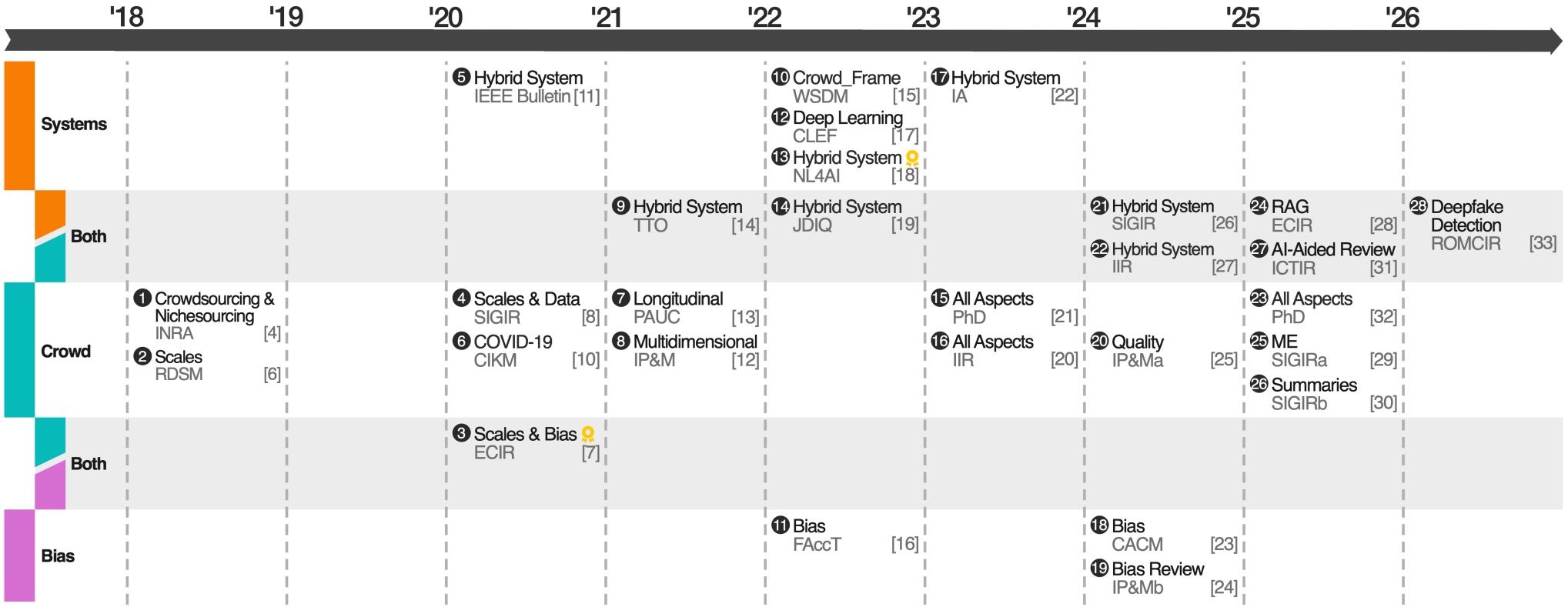
- Online misinformation **spreads faster** than professional fact-checking can scale
- Expert fact-checking remains essential, but it requires **time**, **expertise**, and **evidence**
- Scaling truthfulness assessment requires additional forms of **human judgment**
- Crowdsourcing offers a way to collect many **independent judgments**

GUIDING QUESTION

Can crowdsourcing **approximate expert fact-checking** for truthfulness assessment?

Nine Years of Research

- Since 2018, our work has expanded across **task design**, **bias**, **systems**, and **hybrid workflows**



Markers show publications by year. Rows group contributions by focus. Yellow symbols indicate best paper awards.

Key Shifts

- **Truthfulness representation** became more expressive, moving beyond binary labels toward ordinal, multidimensional, and numerical judgments
- **Task design** became central, as wording, evidence, platform, domain, and worker behavior influenced judgment quality
- **Hybrid workflows** connected crowd judgments with automated components for evidence processing, summarization, and decision support
- **Misinformation assessment** widened beyond textual claims, including recent work on multimodal content

Lessons Learned

- Crowdsourced fact-checking depends on the interaction between **task design**, **quality control**, and **evidence presentation**
- Richer truthfulness scales can capture more nuance, but they also change the **cognitive demands** of the task
- Bias is not only a worker property, but also emerges from **task framing**, **platforms**, and **evidence selection**
- Human-AI workflows are most effective when **automated components support specific stages** of the assessment process

Open Directions

- Refine how truthfulness is represented, from categorical labels to **more expressive judgments**
- Evaluate hybrid fact-checking workflows in terms of **where**, **when**, and **how** human and AI components should interact
- Further study how LLM-generated evidence summaries shape **human judgment**
- Extend crowdsourced assessment to multimodal misinformation, where signals are distributed across **text**, **audio**, and **video**

A Shared Journey

- Our research builds on a broader network of **collaborators**
- The names below are our co-authors, grouped by their **first appearance**
- We are **grateful** to all of them

2018–2020

Damiano Spina · Davide Ceolin · Gianluca Demartini · Beatrice Portelli · David La Barbera · Giuseppe Serra · Shaoyang Fan · Vincenzo Della Mea

2021–2023

Erik Brand · Alessandro Checco · Francesco Bombassei De Bona · Joel Mackenzie · Tim Draws · Afshin Rahimi · Massimiliano De Luise

2024–2026

Arkaitz Zubiaga · Jaspreet Singh · Xia Zeng · Denis Eduard Tapu · Dustin Wright · Gabriella Pasi · Isabelle Augenstein · Marco Viviani · Sandip Modha · Andrea Cioci

Thank you!

Selected publications from our research

SIGIR 2020
Judgment Scales
Can The Crowd Identify Misinformation Objectively?
10.1145/3397271.3401112

PAUC 2021
Longitudinal Assessment
Can the Crowd Judge Truthfulness?
10.1007/s00779-021-01604-6

IP&M 2021
Multidimensional Truthfulness
The Many Dimensions of Truthfulness
10.1016/j.ipm.2021.102710

WSDM 2022
Crowdsourcing Infrastructure
Crowd_Frame
10.1145/3488560.3502182

IP&M 2024
Cognitive Biases
Cognitive Biases in Fact-Checking and Their Countermeasures
10.1016/j.ipm.2024.103672

IP&M 2024
Crowdsourcing Effectiveness
Crowdsourced Fact-checking: Does It Actually Work?
10.1016/j.ipm.2024.103792

SIGIR 2024
Hybrid Workflows
Combining Large Language Models and Crowdsourcing
10.1145/3626772.3657965

SIGIR 2025
Numerical Judgments
The Magnitude of Truth
10.1145/3726302.3730091

SIGIR 2025
LLM-supported Evidence
Efficiency and Effectiveness of LLM-Based Summarization of Evidence
10.1145/3726302.3729960

Contact michael.soprano@uniud.it