

Workshop on 'supporting CRIme reSolution Through Artificial INtelligence' (CRISTAIN)

Eleonora Calò
University of Salerno
Fisciano, Italy
ecalò@unisa.it

Loredana Caruccio
University of Salerno
Fisciano, Italy
lcaruccio@unisa.it

Autilia Vitiello
University of Naples Federico II
Naples, Italy
autilia.vitiello@unina.it

Abstract

This document provides a summary of the First Workshop on 'supporting CRIme reSolution Through Artificial INtelligence' (CRISTAIN 2025), which has been accepted at the 6th Biannual Conference of the Italian SIGCHI Chapter (CHIItaly 2025).

CCS Concepts

• **Computing methodologies** → **Artificial intelligence; Natural language processing; Information extraction**; • **Human-centered computing** → **Graphical user interfaces**; • **Applied computing** → **Computer forensics**.

Keywords

Crime Domain, Artificial Intelligence, Natural Language Processing, Fairness, Topic extraction, Computer forensics

ACM Reference Format:

Eleonora Calò, Loredana Caruccio, and Autilia Vitiello. 2025. Workshop on 'supporting CRIme reSolution Through Artificial INtelligence' (CRISTAIN). In *16th Biannual Conference of the Italian SIGCHI Chapter (CHIItaly 2025)*, October 06–10, 2025, Salerno, Italy. ACM, New York, NY, USA, 2 pages. <https://doi.org/10.1145/3750069.3757878>

1 Motivation and Objectives

All crime, whether criminal, interpersonal or socio-political, can have a negative impact on security and its perception, possibly causing serious economic and social problems. In this concerning context, it is essential to support law enforcement agencies, journalists, and the general public with effective methods to address and communicate these phenomena, providing citizens with a greater sense of safety. Innovative projects in this area could include the development of automated processes for collecting evidence without compromising the crime scene, advanced approaches to evidence analysis for generating models that support investigative decision-making, and digital event reconstruction methods and tools that enable more effective interaction with case-related information.

At the same time, adopting new technologies in journalism is also important. Inaccurate reporting of crime stories can distort public perception, potentially leading to a skewed understanding

of reality. These are just a few examples of how emerging technologies, such as Artificial Intelligence (AI), can provide valuable support in a complex and highly regulated field [4, 6]. Moreover, it is crucial to develop innovative solutions to address various types of crime, such as assault, gender-based violence, or theft—phenomena that are unfortunately becoming increasingly frequent in today's society. Technological advancements and AI-based solutions can offer effective ways to protect victims and actively support those involved in criminal investigations [7, 8].

Examples of AI-based technologies [3] aimed at achieving these goals may include machine learning, computer vision and augmented reality (AR) [2]. In particular, wearable devices used for AR, such as smartphones or tablets, can be mounted on the head (HMD) in the form of glasses or visors. Indeed, this technology integrates the human ability to gather information about reality and to overlay it with 2D/3D objects and graphics, making it potentially transformative for security functions [1]. In addition, these devices can provide valuable support to victims of violence in mental health treatment [5]. The implementation of such solutions could have a significant scientific and technological impact, helping to improve the effectiveness of forensic investigations, increasing perceptions of safety and reducing the cost of investigations. In this context, Human-Computer Interaction (HCI) plays an essential role in making these technologies accessible and effective. The use of advanced systems must be intuitive and aim to reduce the cognitive load on users, allowing law enforcement agencies to focus on the decision-making and strategic aspects of their operations.

Topics of interest include, but are not limited to:

- Crime Scene Analyses
- Case-studies on Crime Analyses
- Context-aware decision making
- Decision support system
- Process management in complex domains
- Domain-specific data collection
- Data Extraction, Transformation and Loading
- Data preparation and processing
- Conversational AI and voice interfaces
- Personalization and predictive interaction
- Distributed interactions among intelligent systems
- AI-based adaptive systems
- Unbiased AI systems
- Ethics and Trustworthy AI
- Awareness and transparency in technology usage
- Environmental impacts of technologies
- Immersive experiences and virtual environments
- Integration of technologies in complex domains
- Haptic and olfactory technologies

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CHIItaly 2025, Salerno, Italy

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ACM ISBN 979-8-4007-2102-1/25/10

<https://doi.org/10.1145/3750069.3757878>

- New sensory dimensions for user experiences
- Redefining human capabilities through technology

2 Workshop Program

The workshop program is built around a series of reviewed scientific contributions, which will be published in the CEUR Workshop Proceedings¹. The accepted papers highlight two main directions: the development of tools to support law enforcement agencies, and the need to provide resources and methodologies for supporting the reporting of criminal events to the public. Regarding the first direction, the reviewed papers demonstrate how AI can provide valuable support to law enforcement operations, with new technologies proving effective in enhancing various aspects of investigative work. The second direction is equally significant, as it is essential to promote communication strategies that are as balanced as possible, in order to mitigate distortions and encourage a fair and informed representation of events. Finally, the workshop contributions share a human-oriented design approach, aimed at creating intuitive, accessible solutions that are genuinely useful for practitioners in the field as well as for those involved in the dissemination of crime-related information.

3 Workshop Program Committee

List of the members of the workshop program committee that evaluated the workshop submissions:

- Autilia Vitiello - University of Naples Federico II
- Loredana Caruccio - University of Salerno
- Eleonora Calò - University of Salerno
- Giovanni Acampora - University of Naples Federico II
- Luciano Garofano - General of the Carabinieri Corps
- Angela Chiatto - University of Naples Federico II
- Marianna Santoro - Policlinico Sant'Orsola
- Federica Rollo - University of Modena & Reggio Emilia

4 Workshop Organizers

Eleonora Calò (e-mail: ecalò@unisa.it) is a Ph.D. student at the Computer Science Department of the University of Salerno. Her research interests are in the field of Artificial Intelligence, specifically in Neuro Symbolic AI systems and their application in critical domains. She served as student volunteer for the EDBT/ICDT 2024 Joint Conference, helping to define the scientific program for the international conference. She is a reviewer for international journals and conferences such as European Symposium on Usable Security (EuroUSEC), IEEE Internet of Things Journal, Soft Computing, and IEEE International Conference on Data Engineering (ICDE).

Loredana Caruccio (e-mail: lcaruccio@unisa.it) is an Associate Professor at the Computer Science Department of the University of Salerno. She completed her Ph.D. in Management & Information Technology in 2018 and worked as a postdoctoral research fellow until 2021 and as a tenure-track Assistant Professor until 2024. She has conducted research visits at the Hasso Plattner Institute (2017) and the LIRIS research lab in France (2020). She has held organizational roles in several international conferences, including serving

as General Chair of EDBT/ICDT 2024 and Program co-Chair of various international conferences, such as DMSVIVA and SEKE, in 2020 and 2024, respectively. She is currently vice co-Chair of the IEEE Big Data Conference. Her research interests include Data Science, Artificial Intelligence, and End User Development, in which she has published numerous articles in international journals and conference proceedings.

Autilia Vitiello (e-mail: autilia.vitiello@unina.it) is a tenure-track Associate Professor at the Department of Physics "Ettore Pancini" of the University of Naples Federico II since 2022. She obtained her Ph.D. in Computer Science from the University of Salerno in 2013. She was an Assistant Professor from December 2018 to July 2022. Her research interests include computational intelligence and its integration with quantum computing. Dr. Vitiello is the Chair of the IEEE-SA P2976 Working Group (WG), and she acts as a Secretary for the IEEE-SA 1855 WG. She is an Editorial Board member of Springer Quantum Machine Intelligence. Moreover, she is the Principal Investigator of the project BLOODSTAIN funded in the program PRIN 2022 (grant number E53D23008040001). She was the recipient of the Best Paper Award at the United Kingdom Workshop on Computational Intelligence, UKCI 2012 (Edinburgh, Scotland, U.K.), of the Best Paper Award at the 2021 IEEE International Conference on Fuzzy Systems, IBM Quantum Experience Academic Research Program Award, and IEEE Computer Society Emerging Technology Grant to initiate the creation of a new research network in the field of quantum artificial intelligence in 2022.

Acknowledgments

This work was supported by project BLOODSTAIN funded in the program PRIN 2022 (grant number E53D23008040001).

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¹<https://ceur-ws.org/>