

# Artificial Intelligence for Digital Forensics

**Special Track, in conjunction with**

## International Conference on Intelligent Systems Design and Applications (ISDA 2019)

### Session Information

The use of Artificial Intelligence (AI) in Digital Forensic Science (DFS) approaches to address cybercrime investigations has been receiving attention over the last few years. This entails using Machine Learning, Statistics, Mathematics, and other related tools to address challenges during a cybercrime investigations. Conventional DFS techniques fall short in many ways, as the challenge with Big Data arose in the last decade. Digital forensic (DF) investigators cannot use conventional DFS techniques anymore, as conventional techniques often require a DF investigator to manually sift through data in order to find appropriate evidence. More intelligent DF investigation techniques are required in order for DFS to keep up with the demands, which are exacerbated by Big Data. The need to address these challenges is evident in organisations like financial institutions, government (law enforcement) and private institutions, amongst others. Overall, this encompasses more than just using AI in DFS approaches; it involves the understanding of the requirements and role that Big Data plays in DF investigations, factors that contribute to or impede the DF investigation process, building skill for DF investigators, creating receptive environments for DF investigations, sharing experiences within the field with other fields, and more. By conducting research with these factors in mind is in the attempt of having a positive impact on the utilisation of AI in DFS.

There are different ways being used to address problems in different areas within the field and there is value in learning the insights gained in all these fields. We aim to provide a session where practitioners in law enforcement (both in the public and private sector), governmental policing institutions and researchers in this field can share their experiences, present current research results and discuss the modelling or analysis of the application and utilisation of AI in DFS in various problem areas within the field.

### Goal 1: Research papers

This session invites full research papers covering AI in DFS Research, Practice & Capacity building in:

- Application of AI in DFS
- New techniques in utilizing AI in DF investigations
- Ethical issues in using AI in DFS
- Efficiency and sustainability of AI in DF investigations
- Economic, social, and personal development
- Using AI in IoT Forensics
- AI for DF investigations in the cloud
- AI and DFS in Smart Cities
- AI and DFS in Education

- Utilizing AI in DFS in Healthcare
- Standardisation of areas within DFS and AI
- Any other similar topic.

## **Goal 2: Idea contributions**

The session invites submission of

- Extended abstracts of work in progress
- Challenges in the field
- New directions of research in the field.

## **Goal 3: Competition Track**

The session invites submission of AI in DFS competitions with the theme around applying AI in DFS.

### **Organisers**

- Hein Venter (UP, South Africa)
- Francois Mouton (Cyanre, South Africa)

Prior workshops or special sessions by organisers

- IFIP WG 11.9 International Conference on Digital Forensics
- ISSA – Information Security for South Africa