RIGHT OR WRONG? THE ROLE OF TECHNOETHICS FOR DIGITAL FORENSIC INVESTIGATIONS

An interview with Filippo Marchetti, István Böröcz and Paul Quinn
By APWG.EU

Novel technologies have disrupted the way in which current digital forensic investigations are pursued. Although technology enables tremendous opportunities to conduct these investigations in a smarter, more efficient and more flexible manner, it raises new ethical dilemmas. Ethics, understood as the moral principles of what is good or wrong, are an integral part of the ongoing of any forensic investigation.

Even worse, acting ethically in the forensic arena may be the difference between establishing the guilt or exonerating the accused in a court of law. Even though digital forensic practitioners, law enforcement agents and prosecutors must act ethically, these principles are often subjective: what is ethical to one person may be unethical to another. However, uniformising these criteria is not straightforward because, unlike the medicine or the law domain, there is no code of ethics that describes how professionals must behave in their forensic investigations. With the aim to set some boundaries, organisations struggle to properly define their own ethical guidelines describing the main duties and responsibilities that professionals must follow.

As technology has been more intrinsically fused with our daily lives, technoethics (ethics in technology) has gained importance to guide new technological development advances to benefit society and prevent technological misuse. Notwithstanding, technologies per se are not ethically neutral: they reflect the values that humans (such as developers) bake into them with our design decisions and reveal what humans value. To prevent technology bias, Dr. Filippo Marchetti, ethics specialist at Trilateral Research, believes that following an “ethics-by-design” approach, in which the ethics informs the whole design of the solution, is paramount. Thanks to this approach, both policy and functional gaps can be solved at the early stages of the technology development, thus ensuring that the final solution will be compliant with legal and ethical requirements. Unfortunately, this is not always at the forefront of the technology development yet, Marchetti regrets.

Due to the high sensitivity of digital evidences obtained from digital crimes, digital forensic technologies should provide distinguished attention to data protection, privacy, ethics, etc. by design and by default. The development and use of ethical-compliant technologies require a close collaboration between lawmakers and ethics experts, who usually lack technical expertise, and technicians and technology developers, whose legal and ethical literacy is commonly insufficient. According to Mr. István Böröcz, ethics researcher at Vrije Universiteit Brussel, both developers and users of digital forensic technologies should be trained to exploit

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the benefits of the technology while protecting at the same time the fundamental and ethical values of the investigations. Hence, trained personnel guarantees conducting lawful and proportionate investigations that assure the rights and freedoms of individuals. Dr. Paul Quinn, professor at Vrije Universiteit Brussel, goes one step further and states that digital forensic technologies adhered to ethical requirements are valuable nowadays, as they may serve to start collaborations with forensic laboratories and law enforcement agencies who attempt to promote legally and ethically sound investigations. Failure to comply with ethical requirements during forensic investigations might lead to serious consequences. In addition to the reputation damage for the organisation, the admissibility of digital evidence in a legal procedure could be denied, thus endangering entire investigations, Böröcz and Quinn say.

Artificial intelligence (AI), a ground-breaking achievement in computer science, is already being incorporated in many current forensic technologies. All our experts agree on the fact that AI is a challenging threat from the ethical perspective. Although AI-enabled solutions bring excellent opportunities to execute hitherto complex tasks for apophenia, they may be susceptible to inaccuracies, misperceptions, bias or discriminatory outcomes due to human flaws integrated in their code, Quinn points out. To mitigate these ethical issues, Böröcz holds the opinion that ethics experts must proactively cooperate with developers to adhere AI tools to good ethical practices during their development by conducting risk and impact assessments. In this sense, all AI-based forensic tools integrated in the LOCARD platform (e.g., for the detection of deviant behaviour, online grooming, streaming of child pornography and copyright infringement in illegal streaming) are being revised periodically by ethical experts during their design and development phases to guarantee their compliance with legal and ethics principles.

In a near future, encouraging a listening culture and a multidisciplinary approach between technicians and ethics specialists to channel the development of digital forensic technologies would be a key milestone in this field.

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To foster this practice, the European Union will play a crucial role, and technologies, such as LOCARD, are a step forward towards this goal. To Marchetti's view, a uniformed ethics regulation among the EU member states, similar to the GDPR for data protection, can lead to a more harmonised legal system, ensuring more effective international collaborations among organisations from different countries operating under the same umbrella. What is clear is that, as our use of technology is practically unavoidable, ethical principles need to be at the heart of every technological solution we develop, in order to support the development of a fair society.

Editor's Note: The opinions expressed by the experts are theirs only, and do not necessarily represent the official standing of their institutions or the LOCARD project.

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