Legal Aid and Access to Justice

(In the Era of AI and Technology)

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Foreword

This book, titled LEGAL AID AND ACCESS TO JUSTICE (In the Era of AI and Technology), comes at a time when legal systems around the world are going through major change. Access to justice has always been a core value of the rule of law and human rights, but today it is being reshaped by rapid growth in digital technology and artificial intelligence. Legal aid was originally created to help people facing poverty and social disadvantage, but it now faces new challenges. These include the digital divide, lack of transparency in algorithms, and the growing use of online and virtual legal processes. This book looks at the basic ideas of legal aid and access to justice, and asks how technology and AI can be used to strengthen justice rather than weaken it.

India provides an important setting for this discussion. The Constitution of India, especially Article 39A, and laws such as the Legal Services Authorities Act, place a strong duty on the state to ensure access to justice. In recent years, India has introduced e-courts, virtual hearings, online dispute resolution, and digital legal aid services. These developments have made courts and legal services more reachable for many people, especially those who were earlier excluded. At the same time, they raise serious concerns about data protection, privacy, cyber security, and the fairness of automated decision-making. There is also a risk that technology-based systems may benefit only those who are educated, connected, and economically secure. This book explores how technology can be used in ways that respect fairness, transparency, inclusion, and human dignity.

The chapters in this book use different methods and viewpoints, including legal analysis, practical experience, comparative studies, and ideas from other disciplines. The authors examine how legal aid systems are interacting with new technologies and how AI is being used in investigation, decision-making, and legal advice. They also discuss the ethical, constitutional, and regulatory issues that arise from these developments. Special attention is given to vulnerable groups such as women, children, persons with disabilities, economically weaker communities, and people living in remote or conflict-affected areas. This book reflects a balanced approach,

recognizing that technology can support justice, but only when it is guided by human rights and social justice values.

The editors have made a conscious effort to keep the wide range of views presented at the conference. The chapters do not all say the same thing, and they do not reach the same conclusions. This diversity is intentional, because questions about legal aid and access to justice in a technology-driven world do not have simple answers.

Finally, this edited book aims to contribute to a growing body of thought on technology and justice that is closely connected to people's lived experiences. It encourages readers to rethink legal aid beyond its traditional limits, to understand access to justice in terms of real outcomes and not just formal procedures, and to ensure that AI and digital tools are governed in line with constitutional values and democratic responsibility. If the chapters that follow stimulate critical thought, inspire new research, and inform policy and institutional reforms in favour of those least able to navigate complex legal terrains, the purpose of this endeavour will be meaningfully served. We hope that this collective effort will be useful to legal scholars, practitioners, policy-makers, and law students (both UG and PG level) working to advance legal aid and access to justice in the age of artificial intelligence and technology.

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Contents

6

Artificial Intelligence as a Forensic Tool

Nataliya Vnukova[*]

Daria Davydenko[**]

Artificial intelligence technologies are increasingly becoming part of the life processes of the population in the leading countries of the world. Despite the shortcomings of its application, which are associated with the lack of transparency of internal mechanisms, it is a new and effective way to solve management and decision-making problems. Artificial intelligence technologies are particularly affected by forensic examinations, because they allow you to simplify a number of tasks for solving issues that are posed to a forensic expert during their conduct. Today, an example of the use of artificial intelligence in forensic examination is the Skeleton-ID program, which allows you to identify a person based on a human skeleton.

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This software recognizes a person using physical anthropology methods, including craniofacial superposition, face comparison, biological profiling, and comparative radiography. Forensic anthropological examination is a new type of forensic research that is especially relevant in Ukraine for the needs of identifying bodies that suffered during the war. The conclusion of a forensic expert is equivalent to evidence in court, so the process of its preparation by a specialist is a labor-intensive process that can be partially automated in terms of technological correlation of information on a person requiring identification. In international practice, artificial intelligence technologies are already successfully used during certain stages of the investigation, in particular in the process of analyzing the seriality of criminal offenses, analyzing various conditions for committing crimes and information from social networks. Thus, for Ukraine, the issue of applying artificial intelligence in forensic examination remains innovative due to the lack of practical experience over the past decade. In addition, artificial intelligence has prospects for development in the field of law in terms of ensuring justice through forensic research. Such technologies create an analytical and instrumental basis for operational decision-making in conditions of limited time.

Artificial intelligence is one of the promising areas of development in all branches of science, including forensics. In Ukraine, forensics in the system of the Ministry of Justice of Ukraine is carried out by only four scientific institutions located in Kyiv, Kharkiv, Dnipro and Odessa, the leading of which is the National Scientific Center «Hon. Prof. M. S. Bokarius Forensic Science Institute» (Kharkiv).

National Scientific Center «Hon. Prof. M. S. Bokarius Forensic Science Institute» is the only scientific institution of forensic expertise in the system of the Ministry of Justice of Ukraine, which has the status of a national one. We conduct research in 90 (ninety) areas, have a huge array of material and technical support and technical equipment. The main tasks of the institution[1]

The main tasks of NSC FSI include:

1) conducting forensic examinations;

1. Official website of National Scientific Center «Hon. Prof. M. S. Bokarius Forensic Science Institute»: https://nncise.org.ua/en (last visited Nov. 21, 2025)

2) conducting expert examinations commissioned by individuals or legal entities using means and methods of forensic science;
3) scientific research in the field of forensic science and criminology and implementation of its results into expert, investigative, and judicial practice;
4) training and advanced training of expert personnel, in particular in the field of law, according to the educational program on theoretical, organizational and procedural issues of forensic science;
5) training of highly qualified scientific personnel in the field of forensic science, criminology and law;
6) scientific, methodological and informational activities in the field of forensic science, criminology and law;
7) international cooperation in the fields of forensic science, criminology, law, training highly qualified scientific personnel, and educational activities.

Forensic anthropological examination is a new type of forensic research that is especially relevant in Ukraine for the needs of identifying bodies that suffered during the war. The conclusion of a forensic expert is equivalent to evidence in court, so the process of its preparation by a specialist is a labor-intensive process that can be partially automated in terms of technological correlation of information on a person requiring identification. In international practice, artificial intelligence technologies are already successfully used during certain stages of the investigation, in particular in the process of analyzing the seriality of criminal offenses, analyzing various conditions for committing crimes and information from social networks. Thus, for Ukraine, the issue of applying artificial intelligence in forensic examination remains innovative due to the lack of practical experience over the past decade. In addition, artificial intelligence has prospects for development in the field of law in terms of ensuring justice through forensic research. Such technologies create an analytical and instrumental basis for operational decision-making in conditions of limited time.

In addition to a wide range of tasks, the National Scientific Center «Hon. Prof. M. S. Bokarius Forensic Science Institute» is actively implementing new areas of research. In difficult times for Ukraine, we have opened a new, relevant expert specialty "Forensic

Anthropological Expertise", the purpose of which is to identify a person (body) by key points on the face.

Forensic anthropological examination is a new type of forensic examination, which is especially relevant in Ukraine for the needs of identifying bodies that were injured during the war. The conclusion of a forensic expert is equivalent to evidence in court, therefore the process of its preparation by a specialist is a laborious process, which can be partially automated from the point of view of the technological correlation of information about the person requiring identification. In international practice, artificial intelligence technologies are already successfully used at certain stages of the investigation, in particular in the process of analyzing the seriality of criminal offenses, analyzing various conditions of committing crimes and information from social networks.

Thus, for Ukraine, the issue of applying artificial intelligence in forensic examination remains innovative due to the lack of practical experience over the past decade. In addition, artificial intelligence has development prospects in the field of law from the point of view of ensuring justice through forensic research. Such technologies create an analytical and instrumental basis for operational decision-making in a time-limited environment.

Artificial intelligence helps us solve this problem. Today, an example of using artificial intelligence in forensic examination is the Skeleton-ID program, which allows you to identify a person by the human skeleton. This software recognizes a person using methods of physical anthropology, including craniofacial superposition, face comparison, biological profiling and comparative radiography.[2]

2. Official website of Skeleton ID: https://skeleton-id.com/(last visited Nov. 21, 2025)

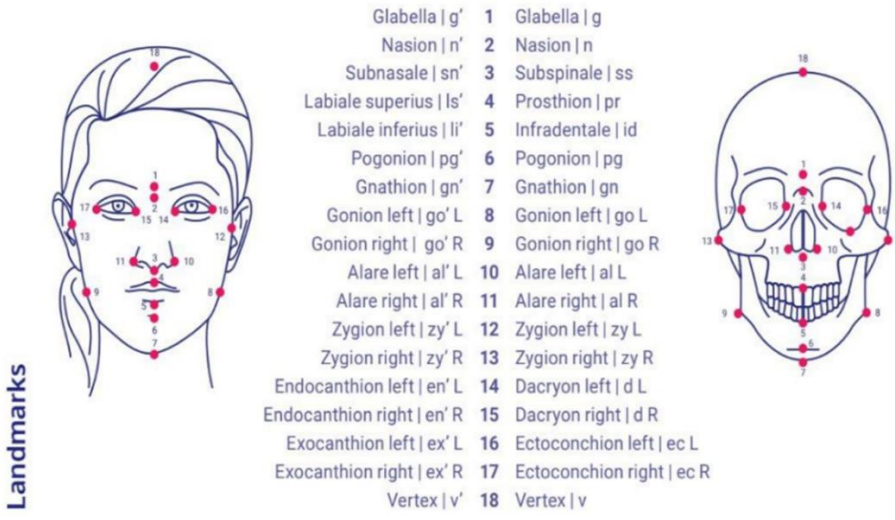

Fig. 1. Key markers (points) for identifying the human skeleton in the Skeleton-ID program

As can be seen from Fig. 1, the Skeleton-ID software makes it possible, using artificial intelligence, to identify a person using 18 key markers.

The Skeleton-ID program is not a development of Ukraine, but for our needs, access to it was provided by a Spanish development company. On January 15, 2025, the National Scientific Center «Hon. Prof. M. S. Bokarius Forensic Science Institute» and the head of Panacea Cooperative Research S. Coop Sebastian Kaiser concluded an additional cooperation agreement in an online format. This agreement is a continuation of the successful cooperation initiated in 2023. The new document confirms mutual obligations and defines the terms of further cooperation, namely - the continued use of the Skeleton-ID software throughout 2025.

Skeleton-ID is, in fact, artificial intelligence, which, based on certain input parameters, compares photos of different people and gives an accurate identification result based on the principle of the greatest correspondence. The list of points by which the comparison is made is given on the slide, there are only eighteen of them. In order to upload the skull of a person who needs identification, a 3D scanner is required. National Scientific Center «Hon. Prof. M. S. Bokarius Forensic Science Institute» has one 3D scanner in its assets.

3D scanning allows you to create accurate digital copies of objects for further analysis and storage, which makes it extremely useful for scientific purposes. The use of laser scanners, photogrammetry and other methods in this process allows you to obtain detailed data about the object by creating its digital models, which can be analyzed and prepared for further processing using special software. These technologies allow researchers to conduct virtual experiments, simulate processes and develop new solutions in various fields of science and technology. Analysis is one of the main stages of processing data obtained using 3D scanning. Processing and interpretation of this data using artificial intelligence (AI) methods opens up new prospects for improving and accelerating the processes of medical diagnostics, production, modeling, construction. To work effectively with large amounts of data, artificial intelligence can automatically extract the necessary data by analyzing the shapes and structures of objects. This can significantly improve the quality of data processing compared to traditional methods.[3]

Ukraine urgently needs the development of identification in the conditions of modern mortality of the population. The only problem remains the insufficient number of individuals for comparison. Thanks to the work of artificial intelligence in the Skeleton ID program, the process of identifying a person has been reduced from several hours or even days to a matter of seconds. The patented technology allows you to automatically compare several skulls, facial images and X-rays simultaneously. The software is effectively used to search databases of missing persons, as well as to identify unidentified remains, in particular in places of mass graves.

3. Cherevyk O. V., Lyashchevska N. O., Analysis of the application of artificial intelligence for 3D scanning data processing, Svyazok, 3, 58-65. (2025), https://con.dut.edu.ua/index.php/communication/article/view/2878/2771 (last visited Nov. 21, 2025)

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