Chapter 1
Generative Artificial Intelligence and Deepfake Technology in the Age of Post-Truth

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ABSTRACT

The concept of post-truth is defined as a period in which the boundaries between truth and falsehood are blurred, values related to truth are trivialized, rendered meaningless, and especially the truth has lost its importance. Generative Artificial Intelligence (GenAI) is a technology that simulates creative processes and is used to create content such as text, images, audio, and video. Major advances in the production of synthetic content, such as creating human-like faces and voices, are among the remarkable uses of this technology. In particular, deepfake technology stands out for its capacity to produce fake but lifelike facial animations, speech, and videos. While these technologies bring innovations to the creative industries, they also pose significant risks in terms of information security, ethics, and public trust. In this study, deepfake technology and examples of deepfake content produced by creative industries will be analyzed in the context of the purpose of the research, focusing on the concept of post-truth.

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INTRODUCTION

The concept of post-truth, which describes an era in which truth is devalued, is relevant to many fields of the social sciences, including politics, psychology, sociology, and media. In this age where personal beliefs, emotions, and interpretations come to the forefront instead of objective data, facts, or rational values, the distinction between truth and lies, as well as truth and falsity becomes less important. One element that increases the visibility of this situation is the use of social media platforms. On these platforms, where manipulated content or false information is quickly disseminated to large masses, it is also ensured that users see more content close to their ideologies. Similarly, generative artificial intelligence and deepfake technologies are also important areas for the discussion of the post-truth phenomenon.

Artificial intelligence is a field of technology that enables computer systems to acquire learning, reasoning, and problem-solving abilities similar to human intelligence. Data-driven artificial intelligence techniques are transforming the field, especially in machine learning, deep learning, and generative artificial intelligence (GenAI). For example, large-scale language models can produce human-like text in natural language processing tasks, while computer vision (CV) techniques can analyze and reconstruct complex images. While machine learning algorithms optimize decision-making processes by extracting meaningful patterns from datasets, deep learning models achieve high accuracy on more complex data structures through the use of multilayer neural networks. In this context, the high accuracy and generative capabilities of deep learning techniques have paved the way for the development of deepfake technology, particularly through models such as Generative Adversarial Networks (GANs).

Deepfake is an artificial intelligence technique that generates and manipulates realistic but fake visual and audio content. While GenAI models create new content by learning the distribution of data, deepfake technology is capable of achieving highly accurate results in areas such as face-swapping, fake video, and audio production. These technologies are transforming modern information ecosystems with both their technical infrastructure and their social impact. However, the use of these technologies for manipulation, disinformation, or other malicious purposes has also introduced significant risks and threats in terms of information security, privacy, ethics, personal data privacy and confidentiality policies, and cybersecurity policies. To mitigate these risks, artificial intelligence-based fake content detection systems are being developed. For example, Microsoft's Video Authenticator or Google DeepMind's deepfake detection models aim to combat disinformation by identifying fake content. GenAI and deep learning-based models have a bidirectional impact on both creative content production and cybersecurity and include regulatory policies and advanced detection mechanisms for the ethical use of these technologies.