§ 9201. Findings

Congress finds the following:

(1) Gaps currently exist on the underlying research needed to develop tools that detect videos, audio files, or photos that have manipulated or synthesized content, including those generated by generative adversarial networks. Research on digital forensics is also needed to identify, preserve, recover, and analyze the provenance of digital artifacts.

(2) The National Science Foundation's focus to support research in artificial intelligence through computer and information science and engineering, cognitive science and psychology, economics and game theory, control theory, linguistics, mathematics, and philosophy, is building a better understanding of how new technologies are shaping the society and economy of the United States.

(3) The National Science Foundation has identified the ''10 Big Ideas for NSF Future Investment'' including ''Harnessing the Data Revolution'' and the ''Future of Work at the Human-Technology Frontier'', with artificial intelligence is a critical component.

(4) The outputs generated by generative adversarial networks should be included under the umbrella of research described in paragraph (3) given the grave national security and societal impact potential of such networks.

(5) Generative adversarial networks are not likely to be utilized as the sole technique of artificial intelligence or machine learning capable of creating credible deepfakes. Other techniques may be developed in the future to produce similar outputs.

(Pub. L. 116–258, § 2, Dec. 23, 2020, 134 Stat. 1150.)

§ 9202. NSF support of research on manipulated or synthesized content and information security

The Director of the National Science Foundation, in consultation with other relevant Federal agencies, shall support merit-reviewed and competitively awarded research on manipulated or synthesized content and information authenticity, which may include—

(1) fundamental research on digital forensic tools or other technologies for verifying the authenticity of information and detection of manipulated or synthesized content, including content generated by generative adversarial networks;

(2) fundamental research on technical tools for identifying manipulated or synthesized content, such as watermarking systems for generated media;

(3) social and behavioral research related to manipulated or synthesized content, including human engagement with the content;

(4) research on public understanding and awareness of manipulated and synthesized content, including research on best practices for educating the public to discern authenticity of digital content; and

(5) research awards coordinated with other federal agencies and programs, including the Defense Advanced Research Projects Agency and the Intelligence Advanced Research Projects Agency,[1] with coordination enabled by the Networking and Information Technology Research and Development Program.

(Pub. L. 116–258, § 3, Dec. 23, 2020, 134 Stat. 1151.)

§ 9203. NIST support for research and standards on generative adversarial networks

(a) In general

The Director of the National Institute of Standards and Technology shall support research for the development of measurements and standards necessary to accelerate the development of the technological tools to examine the function and outputs of generative adversarial networks or other technologies that synthesize or manipulate content.

(b) Outreach

The Director of the National Institute of Standards and Technology shall conduct outreach—

(1) to receive input from private, public, and academic stakeholders on fundamental measurements and standards research necessary to examine the function and outputs of generative adversarial networks; and

(2) to consider the feasibility of an ongoing public and private sector engagement to develop voluntary standards for the function and outputs of generative adversarial networks or other technologies that synthesize or manipulate content.

(Pub. L. 116–258, § 4, Dec. 23, 2020, 134 Stat. 1151.)

§ 9204. Generative adversarial network defined

In this chapter, the term ''generative adversarial network'' means, with respect to artificial intelligence, the machine learning process of attempting to cause a generator artificial neural network (referred to in this section as the ''generator''[1] and a discriminator artificial neural network (referred to in this section as a ''discriminator'') to compete against each other to become more accurate in their function and outputs, through which the generator and discriminator create a feedback loop, causing the generator to produce increasingly higher-quality artificial outputs and the discriminator to increasingly improve in detecting such artificial outputs.

(Pub. L. 116–258, § 6, Dec. 23, 2020, 134 Stat. 1152.)

Editorial Notes

REFERENCES IN TEXT

This chapter, referred to in text, was in the original ''this Act'', meaning Pub. L. 116–258, Dec. 23, 2020, 134 Stat. 1150, known as the Identifying Outputs of Generative Adversarial Networks Act and also as the IOGAN

[1] So in original. Probably should be ''Activity,''.
[1] So in original. Probably should be followed by a closing parenthesis.

Act, which is classified principally to this chapter. For complete classification of this Act to the Code, see Short Title note set out under section 9201 of this title and Tables.

This section, referred to in text, was in the original "this paragraph", and was translated as reading "this section", meaning section 6 of Pub. L. 116–258, to reflect the probable intent of Congress.

CHAPTER 118—SUSTAINABLE CHEMISTRY

§ 9301. National coordinating entity for sustainable chemistry

(a) Establishment

Not later than 180 days after January 1, 2021, the Director of the Office of Science and Technology Policy shall convene an interagency entity (referred to in this chapter as the "Entity") under the National Science and Technology Council with the responsibility to coordinate Federal programs and activities in support of sustainable chemistry, including those described in sections 9303 and 9304 of this title.

(b) Coordination with existing groups

In convening the Entity, the Director of the Office of Science and Technology Policy shall consider overlap and possible coordination with existing committees, subcommittees, or other groups of the National Science and Technology Council, such as—

(1) the Committee on Environment;
(2) the Committee on Technology;
(3) the Committee on Science; or
(4) related groups or subcommittees.

(c) Co-chairs

The Entity shall be co-chaired by the Director of the Office of Science and Technology Policy and a representative from the Environmental Protection Agency, the National Institute of Standards and Technology, the National Science Foundation, or the Department of Energy, as selected by the Director of the Office of Science and Technology Policy.

(d) Agency participation

The Entity shall include representatives, including subject matter experts, from the Environmental Protection Agency, the National Institute of Standards and Technology, the National Science Foundation, the Department of Energy, the Department of Agriculture, the Department of Defense, the National Institutes of Health, the Centers for Disease Control and Prevention, the Food and Drug Administration, and other related Federal agencies, as appropriate.

(e) Termination

The Entity shall terminate on the date that is 10 years after January 1, 2021.

(Pub. L. 116–283, div. A, title II, § 261, Jan. 1, 2021, 134 Stat. 3497.)

§ 9302. Strategic plan for sustainable chemistry

(a) Strategic plan

Not later than 2 years after January 1, 2021, the Entity shall—

(1) consult with relevant stakeholders, including representatives from industry, academia, national labs, the Federal Government, and international entities, to develop and update, as needed, a consensus definition of "sustainable chemistry" to guide the activities under this chapter;

(2) develop a working framework of attributes characterizing, and metrics for assessing, sustainable chemistry, as described in subsection (b);

(3) assess the state of sustainable chemistry in the United States as a key benchmark from which progress under the activities described in this chapter can be measured, including assessing key sectors of the United States economy, key technology platforms, commercial priorities, and barriers to innovation;

(4) coordinate and support Federal research, development, demonstration, technology transfer, commercialization, education, and training efforts in sustainable chemistry, including budget coordination and support for public-private partnerships, as appropriate;

(5) identify any Federal regulatory barriers to, and opportunities for, Federal agencies facilitating the development of incentives for development, consideration, and use of sustainable chemistry processes and products;

(6) identify major scientific challenges, roadblocks, and hurdles to transformational progress in improving the sustainability of the chemical sciences; and

(7) review, identify, and make effort to eliminate duplicative Federal funding and duplicative Federal research in sustainable chemistry.

(b) Characterizing and assessing sustainable chemistry

The Entity shall develop a working framework of attributes characterizing, and metrics for assessing, sustainable chemistry for the purposes of carrying out this chapter. In developing this framework, the Entity shall—

(1) seek advice and input from stakeholders as described in subsection (c);

(2) consider existing definitions of, or frameworks characterizing and metrics for assessing, sustainable chemistry already in use at Federal agencies;

(3) consider existing definitions of, or frameworks characterizing and metrics for assessing, sustainable chemistry already in use by international organizations of which the United States is a member, such as the Organisation for Economic Co-operation and Development; and