....
(Original Signature of Member)

116TH CONGRESS
1ST SESSION

H. R. _____

To direct the Director of the National Science Foundation to support research on the outputs that may be generated by generative adversarial networks, otherwise known as deepfakes, and other comparable techniques that may be developed in the future, and for other purposes.

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IN THE HOUSE OF REPRESENTATIVES

_____

Mr. GONZALEZ of Ohio introduced the following bill; which was referred to the Committee on _____

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A BILL

To direct the Director of the National Science Foundation to support research on the outputs that may be generated by generative adversarial networks, otherwise known as deepfakes, and other comparable techniques that may be developed in the future, and for other purposes.

1   *Be it enacted by the Senate and House of Representa-*

2   *tives of the United States of America in Congress assembled,*

SECTION 1. SHORT TITLE.

This Act may be cited as the "Identifying Outputs of Generative Adversarial Networks Act" or the "IOGAN Act".

SEC. 2. FINDINGS.

Congress finds the following:

(1) Research gaps currently exist on the underlying technology needed to develop tools to identify authentic videos, voice reproduction, or photos from those generated by generative adversarial networks.

(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", in with artificial intelligence is a critical component.

(4) The outputs generated by generative adversarial networks should be included under the um-

1 brella of research described in paragraph (3) given

2 the grave national security and societal impact po-

3 tential of such networks.

4 (5) Generative adversarial networks are not

5 likely to be utilized as the sole technique of artificial

6 intelligence or machine learning capable of creating

7 credible deepfakes and other comparable techniques

8 may be developed in the future to produce similar

9 outputs.

SEC. 3. NSF SUPPORT OF RESEARCH FOR OUTPUTS OF
GENERATIVE ADVERSARIAL NETWORKS.

12 The Director of the National Science Foundation, in

13 consultation with other relevant Federal agencies, shall

14 support merit-reviewed and competitively awarded re-

15 search on the science and ethics of material produced by

16 generative adversarial networks, which may include—

17 (1) supplementing fundamental research on dig-

18 ital media forensic tools or comparable technologies

19 for detection of the outputs of generative adversarial

20 networks completed by the Defense Advanced Re-

21 search Projects Agency and the Intelligence Ad-

22 vanced Research Projects Activity;

23 (2) fundamental research on developing con-

24 straint aware generative adversarial networks; and

1   (3) social and behavioral research on the ethics

2   of the technology, and human engagement with the

3   networks.

SEC. 4. NIST SUPPORT FOR RESEARCH AND STANDARDS ON GENERATIVE ADVERSARIAL NETWORKS.

6   (a) IN GENERAL.—The Director of the National In-

7 stitute of Standards and Technology shall support re-

8 search for the development of measurements and stand-

9 ards necessary to accelerate the development of the tech-

10 nological tools to examine the function and outputs of gen-

11 erative adversarial networks.

12   (b) OUTREACH.—The Director of the National Insti-

13 tute of Standards and Technology shall conduct out-

14 reach—

15   (1) to receive input from private, public, and

16   academic stakeholders on fundamental measure-

17   ments and standards research necessary to examine

18   the function and outputs of generative of generative

19   adversarial networks or to develop constraint aware

20   generative adversarial networks; and

21   (2) to consider the feasibility of an ongoing

22   public and private sector engagement to develop vol-

23   untary standards for the outputs of generative ad-

24   versarial networks or comparable technologies.

1 **SEC. 5. REPORT ON FEASIBILITY OF PUBLIC-PRIVATE**
2   **PARTNERSHIP TO DETECT OUTPUTS OF GEN-**
3   **ERATIVE ADVERSARIAL NETWORKS AND**
4   **COMPARABLE TECHNOLOGIES.**

5 Not later than one year after the date of the enact-
6 ment of this Act, the Director of the National Science
7 Foundation and the Director of the National Institute of
8 Standards and Technology shall jointly submit to the
9 Committee on Space, Science, and Technology of the
10 House of Representatives and the Committee on Com-
11 merce, Science, and Transportation a report containing—

12   (1) the Directors' findings with respect to the
13   feasibility for research opportunities with the private
14   sector, including digital media companies to detect
15   the outputs of generative adversarial networks or
16   comparable technologies; and

17   (2) any policy recommendations of the Direc-
18   tors that could facilitate and improve communication
19   and coordination between the private sector, the Na-
20   tional Science Foundation, and relevant Federal
21   agencies through the implementation of innovative
22   approaches to detect media products produced by
23   generative adversarial networks or comparable tech-
24   nologies.

25 **SEC. 6. DEFINITIONS.**

26 In this Act:

1   (1) GENERATIVE ADVERSARIAL NETWORK.—

2   The term "generative adversarial network" means,

3   with respect to artificial intelligence, the machine

4   learning process of attempting to cause a generator

5   artificial neural network (referred to in this para-

6   graph as the "generator" and a discriminator artifi-

7   cial neural network (referred to in this paragraph as

8   a "discriminator") to compete against each other to

9   become more accurate in their function and outputs,

10   through which the generator and discriminator cre-

11   ate a feedback loop, causing the generator to

12   produce increasingly higher-quality artificial outputs

13   and the discriminator to increasingly improve in de-

14   tecting such artificial outputs.

15   (2) COMPARABLE TECHNOLOGY.—The term

16   "comparable technology" means technology that uti-

17   lizes similar techniques to achieve the same outputs

18   as a generative adversarial network.

19   (3) CONSTRAINT AWARE.—The term "con-

20   straint aware" means, with respect to artificial intel-

21   ligence, the generation of realistic relational data by

22   a machine with constraint on the modules generated

23   by an adversarial network.