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.

IN THE HOUSE OF REPRESENTATIVES

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

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 Representatives 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 which artificial intelligence is a critical component.

(4) The outputs generated by generative adversarial networks should be included under the um-
brella of research described in paragraph (3) given
the grave national security and societal impact po-
tential 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 and other comparable techniques
may be developed in the future to produce similar
outputs.

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

The Director of the National Science Foundation, in
consultation with other relevant Federal agencies, shall
support merit-reviewed and competitively awarded re-
search on the science and ethics of material produced by
generative adversarial networks, which may include—

(1) supplementing fundamental research on dig-
ital media forensic tools or comparable technologies
for detection of the outputs of generative adversarial
networks completed by the Defense Advanced Re-
search Projects Agency and the Intelligence Ad-
vanced Research Projects Activity;

(2) fundamental research on developing con-
straint aware generative adversarial networks; and
(3) social and behavioral research on the ethics of the technology, and human engagement with the networks.

SEC. 4. 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.

(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 of generative adversarial networks or to develop constraint aware generative adversarial networks; and

(2) to consider the feasibility of an ongoing public and private sector engagement to develop voluntary standards for the outputs of generative adversarial networks or comparable technologies.
SEC. 5. REPORT ON FEASIBILITY OF PUBLIC-PRIVATE PARTNERSHIP TO DETECT OUTPUTS OF GENERATIVE ADVERSARIAL NETWORKS AND COMPARABLE TECHNOLOGIES.

Not later than one year after the date of the enactment of this Act, the Director of the National Science Foundation and the Director of the National Institute of Standards and Technology shall jointly submit to the Committee on Space, Science, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation a report containing—

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

(2) any policy recommendations of the Directors that could facilitate and improve communication and coordination between the private sector, the National Science Foundation, and relevant Federal agencies through the implementation of innovative approaches to detect media products produced by generative adversarial networks or comparable technologies.

SEC. 6. DEFINITIONS.

In this Act:
(1) Generative Adversarial Network.—

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 paragraph as the “generator” and a discriminator artificial neural network (referred to in this paragraph 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.

(2) Comparable Technology.—The term “comparable technology” means technology that utilizes similar techniques to achieve the same outputs as a generative adversarial network.

(3) Constraint Aware.—The term “constraint aware” means, with respect to artificial intelligence, the generation of realistic relational data by a machine with constraint on the modules generated by an adversarial network.