

116TH CONGRESS
2D SESSION

S. 3891

To require the Director of the National Institute of Standards and Technology to advance the development of technical standards for artificial intelligence, to establish the National Program to Advance Artificial Intelligence Research, to promote research on artificial intelligence at the National Science Foundation, and for other purposes.

IN THE SENATE OF THE UNITED STATES

JUNE 4, 2020

Mr. GARDNER (for himself, Mr. PETERS, and Mr. WICKER) introduced the following bill; which was read twice and referred to the Committee on Commerce, Science, and Transportation

A BILL

To require the Director of the National Institute of Standards and Technology to advance the development of technical standards for artificial intelligence, to establish the National Program to Advance Artificial Intelligence Research, to promote research on artificial intelligence at the National Science Foundation, 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,*

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “Advancing Artificial
5 Intelligence Research Act of 2020”.

1 **SEC. 2. STANDARD DEVELOPMENT FOR ARTIFICIAL INTEL-**
2 **LIGENCE AT THE NATIONAL INSTITUTE OF**
3 **STANDARDS AND TECHNOLOGY.**

4 The National Institute of Standards and Technology
5 Act (15 U.S.C. 271 et seq.) is amended by inserting after
6 section 22 the following:

7 **“SEC. 22A. STANDARDS FOR ARTIFICIAL INTELLIGENCE.**

8 “(a) MISSION.—The Institute shall—

9 “(1) have the mission of advancing frameworks,
10 standards, guidelines, and associated methods and
11 techniques for artificial intelligence;

12 “(2) support the development of a risk-mitiga-
13 tion framework for deploying artificial intelligence;

14 “(3) support the development of technical
15 standards and guidelines that promote reliable, ro-
16 bust, and trustworthy artificial intelligence; and

17 “(4) support the development of technical
18 standards and guidelines by which to test for bias in
19 artificial intelligence training data and applications.

20 “(b) PARTICIPATION IN STANDARD SETTING ORGA-
21 NIZATIONS.—

22 “(1) REQUIREMENT.—The Institute shall par-
23 ticipate in the development of standards and speci-
24 fications for artificial intelligence.

1 “(2) PURPOSE.—The purpose of participation
2 of the Institute under paragraph (1) shall be to en-
3 sure—

4 “(A) that standards promote artificial in-
5 telligence that is reliable, robust, and trust-
6 worthy; and

7 “(B) that standards relating to artificial
8 intelligence reflect the state of technology and
9 are fit-for-purpose and developed in the trans-
10 parent and consensus-based processes that are
11 open to all stakeholders.”.

12 **SEC. 3. ESTABLISHMENT OF NATIONAL PROGRAM TO AD-**
13 **VANCE ARTIFICIAL INTELLIGENCE RE-**
14 **SEARCH.**

15 The National Institute of Standards and Technology
16 Act (15 U.S.C. 271 et seq.), as amended by section 2,
17 is further amended by inserting after section 22A the fol-
18 lowing:

19 **“SEC. 22B. NATIONAL PROGRAM TO ADVANCE ARTIFICIAL**
20 **INTELLIGENCE RESEARCH.**

21 “(a) ESTABLISHMENT.—

22 “(1) IN GENERAL.—The Director shall establish
23 a research program with a national scope to advance
24 use-inspired artificial intelligence research and its
25 use in a manner that serves the needs of the United

1 States, the Institute, industry, the academic commu-
2 nity, and such other entities as the Director con-
3 siders appropriate.

4 “(2) DESIGNATION.—The research program es-
5 tablished under paragraph (1) shall be known as the
6 ‘National Program to Advance Artificial Intelligence
7 Research’ (in this section referred to as the ‘Pro-
8 gram’).

9 “(b) ACTIVITIES.—The activities of the Program
10 shall include the following:

11 “(1) Supporting research necessary to opera-
12 tionalize the goals of reliable, robust, and trust-
13 worthy artificial intelligence.

14 “(2) Supporting research necessary to develop
15 and operationalize technical standards and guide-
16 lines that promote reliable, robust, and trustworthy
17 artificial intelligence.

18 “(3) Fostering development of artificial intel-
19 ligence applications that would enhance the public
20 good.

21 “(4) Supporting research necessary to advance
22 human-centered artificial intelligence and examining
23 societal, ethical, safety, security, and privacy effects
24 of artificial intelligence development and deployment.

1 “(5) Creating and developing processes for the
2 purpose of advancing use-inspired artificial intel-
3 ligence research and its use.

4 “(6) Promoting exchange of personnel among
5 industry, academic, and the government entities.

6 “(7) Establishing and operating at least one
7 test bed to support the outside entities testing the
8 degree to which artificial intelligence applications
9 and training data are reliable, robust, and trust-
10 worthy.

11 “(c) GEOGRAPHIC DISTRIBUTION.—In establishing
12 the Program, the Director may establish multiple physical
13 campuses and a national network of participants to avoid
14 undue geographic concentration of the activities of the
15 Program.

16 “(d) AUTHORIZATION OF APPROPRIATIONS.—There
17 is authorized to be appropriated to carry out this section
18 \$250,000,000 for each of fiscal years 2021 through
19 2025.”.

20 **SEC. 4. ESTABLISHMENT OF NATIONAL ARTIFICIAL INTEL-**
21 **LIGENCE RESEARCH INSTITUTES.**

22 (a) ESTABLISHMENT.—

23 (1) IN GENERAL.—The Director of the National
24 Science Foundation shall establish at least 6 re-
25 search institutes to serve the needs of the United

1 States, industry, the academic community, and such
2 other entities as the Director considers appropriate
3 by—

4 (A) conducting research on longer-time-ho-
5 rizon challenges in artificial intelligence re-
6 search; and

7 (B) creating and developing processes for
8 the purpose of advancing use-inspired artificial
9 intelligence research and its deployment.

10 (2) DESIGNATION.—Each research institute es-
11 tablished under paragraph (1) shall be known as a
12 “National Artificial Intelligence Research Institute”.

13 (b) GRANTS.—

14 (1) IN GENERAL.—The Director shall establish
15 the research institutes under subsection (a) through
16 the award of grants to eligible entities using a com-
17 petitive, merit-reviewed process.

18 (2) ELIGIBLE ENTITIES.—For purposes of this
19 section, an eligible entity is—

20 (A) an institution of higher education;

21 (B) a nonprofit research center;

22 (C) such other type of entity as the Direc-
23 tor considers appropriate; or

1 (D) a collaboration of any combination of
2 entities described in subparagraphs (A) through
3 (C).

4 (3) DURATION.—

5 (A) IN GENERAL.—Each grant awarded
6 under paragraph (1) shall be for a period of 5
7 years.

8 (B) REAPPLICATION.—The Director may
9 approve or disapprove reapplications from grant
10 recipients for additional grants.

11 (C) TERMINATION.—The Director may ter-
12 minate a grant awarded under paragraph (1)
13 for an underperforming research institute, for
14 cause, during the performance period of the
15 grant.

16 (c) APPLICATIONS.—An eligible entity seeking a
17 grant under paragraph (1) to establish a research institute
18 under this section shall submit to the Director an applica-
19 tion therefor at such time, in such manner, and containing
20 such information as the Director determines appropriate.

21 (d) COMMUNITY FACILITY.—The Director shall en-
22 sure that at least 1 research institute established under
23 this section operates an artificial-intelligence community
24 computing facility that is available for use by entities

1 other than research institutes established under this sec-
2 tion.

3 (e) FUNDING.—

4 (1) IN GENERAL.—Subject to the availability of
5 appropriations, the Director may, in each of fiscal
6 years 2021 through 2025, obligate to carry out this
7 section an amount that is less than or equal to
8 \$50,000,000 multiplied by the number of research
9 institutes established under this section.

10 (2) DERIVATION OF FUNDS.—Amounts obli-
11 gated to carry out this section shall be derived from
12 amounts appropriated to the Foundation.

13 **SEC. 5. NATIONAL SCIENCE FOUNDATION TRAINEESHIP**
14 **PROGRAM GRANTS.**

15 (a) PROGRAM REQUIRED.—

16 (1) IN GENERAL.—The Director of the National
17 Science Foundation shall carry out a program to
18 award grants to eligible entities to establish train-
19 eeship programs and support trainees in topics se-
20 lected by the Director under subsection (c).

21 (2) PURPOSE.—The purpose of the program es-
22 tablished by the Director under paragraph (1) shall
23 be to increase the number of individuals with ad-
24 vanced degrees through both direct support and pro-
25 grammatic support.

1 (b) ELIGIBLE ENTITIES.—For purposes of this sec-
2 tion, an eligible entity is—

3 (1) an institution of higher education; or

4 (2) a consortia of institutions of higher edu-
5 cation or nonprofit organizations.

6 (c) TOPICS OF NATIONAL IMPORTANCE.—

7 (1) IN GENERAL.—Subject to paragraph (2),
8 the Director shall select a topic for the award of
9 grants under subsection (a) based on—

10 (A) the potential of a traineeship program
11 in the topic or support of trainees in the topic
12 to affect society positively;

13 (B) the importance of the topic to the
14 economy and security of the United States;

15 (C) the career opportunities for the grad-
16 uates; and

17 (D) the need for workers in the topic with
18 advanced degrees.

19 (2) INITIAL TOPIC SELECTION.—The Director
20 shall select artificial intelligence as the initial topic
21 for the award of grants under subsection (a).

22 (d) COMPONENTS.—A grant awarded under this sec-
23 tion may include support for—

24 (1) the recipient of the grant to develop and
25 distribute model curriculum that may be used by

1 other graduate programs to educate students in the
2 topic selected under subsection (c);

3 (2) mentors to provide guidance for students
4 within the topic area; and

5 (3) tuition and stipend for students pursuing a
6 masters or doctoral degree.

7 **SEC. 6. NATIONAL SCIENCE FOUNDATION PILOT PROGRAM**
8 **ON GRANTS FOR RESEARCH IN RAPIDLY**
9 **EVOLVING, HIGH PRIORITY TOPICS.**

10 (a) PILOT PROGRAM REQUIRED.—The Director of
11 the National Science Foundation shall establish a pilot
12 program to assess the feasibility and advisability of award-
13 ing grants for the conduct of research in rapidly evolving,
14 high priority topics.

15 (b) DURATION.—

16 (1) IN GENERAL.—The Director shall carry out
17 the pilot program required by subsection (a) during
18 the 5-year period beginning on the date of the enact-
19 ment of this Act.

20 (2) ASSESSMENT AND CONTINUATION AUTHOR-
21 ITY.—After the period set forth in paragraph (1)—

22 (A) the Director shall assess the pilot pro-
23 gram; and

1 (B) if the Director determines that it is
2 both feasible and advisable to do so, the Direc-
3 tor may continue the pilot program.

4 (c) GRANTS.—In carrying out the pilot program, the
5 Director shall award grants for the conduct of research
6 in topics selected by the Director in accordance with sub-
7 section (d).

8 (d) TOPIC SELECTION.—The Director shall select
9 topics for research under the pilot program in accordance
10 with the following:

11 (1) The Director shall select artificial intel-
12 ligence as the initial topic for the pilot program.

13 (2) The Director may select additional topics
14 that the Director determines are—

15 (A) rapidly evolving; or

16 (B) of high importance to the economy and
17 security of the United States.

18 (e) APPLICATIONS.—

19 (1) IN GENERAL.—Subject to paragraph (2), a
20 person seeking a grant under the pilot program shall
21 submit to the Director an application therefor at
22 such time, in such manner, and containing such in-
23 formation as the Director may specify.

24 (2) CONTENTS.—Each application submitted
25 under paragraph (1) shall include the following:

1 (A) A brief description of the research the
2 applicant proposes to carry out with a grant
3 awarded under the pilot program.

4 (B) A brief description of how the research
5 is of an urgent nature.

6 (C) The general goals of the research.

7 (D) Such other information as the Director
8 may specify.

9 (f) USE OF FUNDS.—A recipient of a grant under
10 the pilot program shall use the amount of the grant to
11 conduct the research for which the grant was awarded.

12 (g) SUMMARIES OF RESEARCH FINDINGS.—A recipi-
13 ent of a grant under the pilot program shall submit to
14 the Director, at such intervals as the Director determines
15 appropriate, a summary of the findings of the recipient
16 with respect to the research conducted with the grant
17 amount.

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