

Calendar No. 486

118TH CONGRESS
2D SESSION**S. 4394**

To support National Science Foundation education and professional development relating to artificial intelligence.

IN THE SENATE OF THE UNITED STATES

MAY 22, 2024

Ms. CANTWELL (for herself and Mr. MORAN) introduced the following bill; which was read twice and referred to the Committee on Commerce, Science, and Transportation

AUGUST 1, 2024

Reported by Ms. CANTWELL, with an amendment

[Strike out all after the enacting clause and insert the part printed in *italic*]**A BILL**

To support National Science Foundation education and professional development relating to artificial intelligence.

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 “NSF AI Education
5 Act of 2024”.

1 **SEC. 2. DEFINITIONS.**

2 In this Act:

3 (1) **ARTIFICIAL INTELLIGENCE; AI.**—The term
4 “artificial intelligence” or “AI” has the meaning
5 given such term in section 5002 of the William M.
6 (Mac) Thornberry National Defense Authorization
7 Act for Fiscal Year 2021 (15 U.S.C. 9401).

8 (2) **COMMUNITY COLLEGE.**—The term “commu-
9 nity college” has the meaning given the term “junior
10 or community college” in section 312(f) of the High-
11 er Education Act of 1965 (20 U.S.C. 1058(f)).

12 (3) **DIRECTOR.**—The term “Director” means
13 the Director of the National Science Foundation.

14 (4) **EMERGING RESEARCH INSTITUTION.**—The
15 term “emerging research institution” has the mean-
16 ing given the term in section 10002 of the Research
17 and Development, Competition, and Innovation Act
18 (42 U.S.C. 18901).

19 (5) **EPSCoR INSTITUTION.**—The term
20 “EPSCoR institution” means an institution of high-
21 er education, nonprofit organization, or other insti-
22 tution located in a jurisdiction eligible to participate
23 in the Established Program to Stimulate Competi-
24 tive Research under section 113 of the National
25 Science Foundation Authorization Act of 1988 (42
26 U.S.C. 1862g).

1 (6) HIGH SCHOOL.—The term “high school”
2 has the meaning given that term in section 8101 of
3 the Elementary and Secondary Education Act of
4 1965 (20 U.S.C. 7801).

5 (7) HISTORICALLY BLACK COLLEGE AND UNI-
6 VERSITY.—The term “historically Black college and
7 university” has the meaning given the term “part B
8 institution” in section 322 of the Higher Education
9 Act of 1965 (20 U.S.C. 1061).

10 (8) INSTITUTION OF HIGHER EDUCATION.—The
11 term “institution of higher education” has the
12 meaning given the term in section 101(a) of the
13 Higher Education Act of 1965 (20 U.S.C. 1001(a)).

14 (9) KEY EMERGING TECHNOLOGIES.—The term
15 “key emerging technologies” means the technologies
16 included in the initial list of key technology focus
17 areas set forth by section 10387(e) of the Research
18 and Development, Competition, and Innovation Act
19 (42 U.S.C. 19107(e)), photonics, and electronics.

20 (10) LABOR ORGANIZATION.—The term “labor
21 organization” has the meaning given the term in
22 section 2(5) of the National Labor Relations Act (29
23 U.S.C. 152(5)), except that such term shall also in-
24 clude—

1 (A) any organization composed of labor or-
2 ganizations, such as a labor union federation or
3 a State or municipal labor body; and

4 (B) any organization that would be in-
5 cluded in the definition for such term under
6 such section 2(5) but for the fact that the orga-
7 nization represents—

8 (i) individuals employed by the United
9 States, any wholly owned Government cor-
10 poration, any Federal Reserve Bank, or
11 any State or political subdivision thereof;

12 (ii) individuals employed by persons
13 subject to the Railway Labor Act (45
14 U.S.C. 151 et seq.); or

15 (iii) individuals employed as agricul-
16 tural laborers.

17 (11) ~~MINORITY-SERVING INSTITUTION.~~—The
18 term “~~minority-serving institution~~” has the meaning
19 given the term in section 10002 of the Research and
20 Development, Competition, and Innovation Act (42
21 U.S.C. 18901).

22 (12) ~~NATIONAL LABORATORY.~~—The term “~~Na-~~
23 tional Laboratory” has the meaning given that term
24 in section 2 of the Energy Policy Act of 2005 (42
25 U.S.C. 15801).

1 (13) ~~NONPROFIT ORGANIZATION.~~—The term
2 “nonprofit organization” means an organization
3 which is described in section 501(c)(3) of the Inter-
4 nal Revenue Code of 1986 and exempt from tax
5 under section 501(a) of such Code.

6 (14) ~~QUANTUM HYBRID COMPUTING.~~—The
7 term “quantum hybrid computing” means the use of
8 quantum computing in conjunction with classical
9 computing.

10 (15) ~~QUANTUM INFORMATION SCIENCE.~~—The
11 term “quantum information science” means the use
12 of the laws of quantum physics for the storage,
13 transmission, manipulation, computing, or measure-
14 ment of information.

15 (16) ~~RURAL-LOCATED INSTITUTION OF HIGHER~~
16 ~~EDUCATION.~~—The term “rural-located institution of
17 higher education” means an institution of higher
18 education that is located in or near areas that are
19 not classified as urban by the Census Bureau.

20 (17) ~~RURAL-SERVING INSTITUTION OF HIGHER~~
21 ~~EDUCATION.~~—The term “rural-serving institution of
22 higher education” means an institution of higher
23 education that—

24 (A) primarily serves areas that are not
25 classified as urban by the Census Bureau; and

1 (B) offers degrees that are unique and
2 helpful to rural regions that are not classified
3 as urban by the Census Bureau.

4 (18) STEM.—The term “STEM” means
5 science, technology, engineering, and mathematics,
6 including computer science.

7 (19) TRIBAL COLLEGE OR UNIVERSITY.—The
8 term “Tribal College or University” has the meaning
9 given the term in section 316(b) of the Higher Edu-
10 cation Act of 1965 (20 U.S.C. 1059c(b)).

11 **SEC. 3. UNDERGRADUATE SCHOLARSHIPS FOR ARTIFICIAL**
12 **INTELLIGENCE EDUCATION.**

13 (a) SCHOLARSHIPS RELATED TO AI OR QUANTUM
14 HYBRID COMPUTING.—

15 (1) IN GENERAL.—The Director shall award
16 merit or need-based scholarships to undergraduate
17 students at institutions of higher education in order
18 to enable such students to study—

19 (A) the development, deployment, integra-
20 tion, or application of artificial intelligence; or

21 (B) quantum hybrid computing.

22 (2) SCHOLARSHIPS.—Scholarships awarded
23 under paragraph (1) shall be in the form of annual
24 grant awards for a 4-year period in amounts that
25 cover the cost of tuition, education-related fees, and

1 a stipend. Such scholarships shall be paid directly to
2 the institution of higher education in which the stu-
3 dent is enrolled.

4 (b) SCHOLARSHIPS RELATED TO AI AND AGRI-
5 CULTURE.—

6 (1) IN GENERAL.—The Director shall award
7 merit- or need-based scholarships to undergraduate
8 students at institutions of higher education in order
9 to enable such students to study—

10 (A) artificial intelligence and agriculture;

11 or

12 (B) the integration of artificial intelligence
13 into agricultural operations, prediction, and de-
14 cision making.

15 (2) PRIORITY.—In awarding scholarships under
16 this subsection, the Director shall give preference to
17 students who are attending rural-located institutions
18 of higher education, rural-serving institutions of
19 higher education, or Tribal Colleges or Universities.

20 (3) SCHOLARSHIPS.—Scholarships awarded
21 under paragraph (1) shall be in the form of annual
22 grant awards for a 4-year period in amounts that
23 cover the cost of tuition, education-related fees, and
24 a stipend. Such scholarships shall be paid directly to

1 the institution of higher education in which the stu-
2 dent is enrolled.

3 (c) SCHOLARSHIPS RELATED TO AI AND EDU-
4 CATION.—

5 (1) IN GENERAL.—The Director shall award
6 merit- or need-based scholarships to undergraduate
7 students at institutions of higher education in order
8 to enable such students to study the teaching of arti-
9 ficial intelligence and artificial intelligence skills at
10 elementary schools, secondary schools, career and
11 technical education schools, institutions of higher
12 education, or through other higher education and
13 professional education programs.

14 (2) SCHOLARSHIPS.—Scholarships awarded
15 under paragraph (1) shall be in the form of annual
16 grant awards for a 4-year period that cover the cost
17 of tuition, education-related fees, and a stipend.
18 Such scholarships shall be paid directly to the insti-
19 tution of higher education in which the student is
20 enrolled.

21 (d) SCHOLARSHIPS RELATED TO AI AND ADVANCED
22 MANUFACTURING.—

23 (1) IN GENERAL.—The Director shall award
24 merit- or need-based scholarships to undergraduate

1 students at institutions of higher education in order
 2 to enable such students to study—

3 (A) artificial intelligence and advanced
 4 manufacturing; or

5 (B) the integration of artificial intelligence
 6 into advanced manufacturing operations.

7 (2) SCHOLARSHIPS.—Scholarships awarded
 8 under paragraph (1) shall be in the form of annual
 9 grant awards for a 4-year period that cover the cost
 10 of tuition, education-related fees, and a stipend.
 11 Such scholarships shall be paid directly to the insti-
 12 tution of higher education in which the student is
 13 enrolled.

14 (e) METHOD.—The Director may carry out this sec-
 15 tion by making awards through new or existing programs.

16 **SEC. 4. GRADUATE SCHOLARSHIPS AND FELLOWSHIPS FOR**
 17 **ARTIFICIAL INTELLIGENCE EDUCATION.**

18 (a) GRADUATE SCHOLARSHIPS RELATED TO AI OR
 19 QUANTUM HYBRID COMPUTING.—The Director shall
 20 award merit- or need-based scholarships to graduate stu-
 21 dents at institutions of higher education in order to enable
 22 such students to study—

23 (1) the development, deployment, integration,
 24 or application of artificial intelligence; or

25 (2) quantum hybrid computing.

1 (b) SCHOLARSHIPS RELATED TO AI AND AGRI-
2 CULTURE.—

3 (1) IN GENERAL.—The Director shall award
4 merit- or need-based scholarships to graduate stu-
5 dents at institutions of higher education in order to
6 enable such students to study—

7 (A) artificial intelligence and agriculture;

8 or

9 (B) the integration of artificial intelligence
10 into agricultural operations, prediction, and de-
11 cisionmaking.

12 (2) PRIORITY.—In awarding scholarships under
13 this subsection, the Director shall give preference to
14 students who are attending rural-located institutions
15 of higher education, rural-serving institutions of
16 higher education, or Tribal Colleges or Universities.

17 (c) GRADUATE SCHOLARSHIPS RELATED TO AI AND
18 EDUCATION.—The Director shall award merit- or need-
19 based scholarships to graduate students at institutions of
20 higher education in order to enable such students to study
21 the teaching of artificial intelligence and artificial intel-
22 ligence skills at elementary schools, secondary schools, ea-
23 reer and technical education schools, institutions of higher
24 education, or through other higher education and profes-
25 sional education programs.

1 (d) GRADUATE SCHOLARSHIPS RELATED TO AI AND
 2 ADVANCED MANUFACTURING.—The Director shall award
 3 merit- or need-based scholarships to graduate students at
 4 institutions of higher education in order to enable such
 5 students to study—

6 (1) artificial intelligence and advanced manu-
 7 facturing; or

8 (2) the integration of artificial intelligence into
 9 advanced manufacturing operations.

10 (e) SCHOLARSHIPS.—Scholarships awarded under
 11 this section shall be in the form of annual grant awards
 12 for a 3-year period that cover the cost of tuition, edu-
 13 cation-related fees, and a stipend. Such scholarships shall
 14 be paid directly to the institution of higher education in
 15 which the student is enrolled.

16 (f) METHOD.—The Director may carry out this sec-
 17 tion by making awards through new or existing programs.

18 **SEC. 5. NSF ARTIFICIAL INTELLIGENCE PROFESSIONAL DE-**
 19 **VELOPMENT FELLOWSHIPS.**

20 (a) IN GENERAL.—The Director shall establish a pro-
 21 gram to promote the exchange of ideas and encourage col-
 22 laborations between institutions of higher education and
 23 industry partners in the fields of artificial intelligence and
 24 key emerging technologies, including through fellowships
 25 for students and industry professionals.

1 (b) FELLOWSHIPS.—

2 (1) IN GENERAL.—The Director shall award
3 merit-based fellowships for professionals for profes-
4 sional development programs in STEM fields or the
5 field of education that are administered by or affili-
6 ated with institutions of higher education, in order
7 to enable fellowship recipients to attain skills or
8 training on—

9 (A) the development, deployment, integra-
10 tion, or application of artificial intelligence;

11 (B) prompt engineering; or

12 (C) quantum hybrid computing.

13 (2) FELLOWSHIP AWARDS.—Awards under this
14 subsection shall be in the form of one annual award
15 that covers the cost of tuition, education-related
16 fees, and a stipend. Such awards shall be paid di-
17 rectly to the institution of higher education that ad-
18 ministers, or that is affiliated with, the program in
19 which the fellowship recipient is participating.

20 **SEC. 6. ARTIFICIAL INTELLIGENCE TRAINING FOR LAND-**
21 **GRANT COLLEGES AND UNIVERSITIES.**

22 (a) IN GENERAL.—The Secretary of Agriculture, act-
23 ing through the Director of the National Institute of Food
24 and Agriculture, in collaboration with the Director of the
25 National Science Foundation, shall award grants to land-

1 grant colleges and universities (as defined in section 1404
 2 of the National Agricultural Research, Extension, and
 3 Teaching Policy Act of 1977 (7 U.S.C. 3103)) for artifi-
 4 cial intelligence in agriculture.

5 (b) USE OF FUNDS.—A grant awarded under this
 6 section may be used for—

7 (1) research and development on the use of ar-
 8 tificial intelligence in agriculture or the integration
 9 of artificial intelligence into agricultural operations,
 10 predictions, and decision making;

11 (2) the dissemination of educational resources
 12 for artificial intelligence in rural areas; and

13 (3) artificial intelligence tools for agriculture.

14 **SEC. 7. QUANTUM FELLOWSHIPS AND SCHOLARSHIPS.**

15 (a) IN GENERAL.—The Director may establish or use
 16 existing programs to support fellowships and scholarships
 17 for students at institutions of higher education for the
 18 purpose of—

19 (1) increasing quantum information science, en-
 20 gineering, and technology exposure for under-
 21 graduate and graduate STEM students; and

22 (2) increasing post-graduation employment op-
 23 portunities for STEM students who demonstrate po-
 24 tential to pursue careers in quantum information

1 science, engineering, and technology, or fields that
2 support the quantum industry.

3 (b) REQUIREMENTS.—Eligible participants in the fel-
4 lowship and scholarship program shall—

5 (1) be enrolled in or have graduated from a
6 STEM degree program at a domestic institution of
7 higher education; and

8 (2) have taken at least one quantum-science or
9 quantum-relevant course as part of their degree pro-
10 grams.

11 (c) CONSIDERATIONS.—Eligible fellowships and
12 scholarships may include temporary quantum-related posi-
13 tions at State or Federal agencies, National Laboratories,
14 private sector entities, institutions of higher education, or
15 other quantum-relevant entities, as determined appro-
16 priate by the Director.

17 (d) COMPETITIVE AWARDS.—Fellowships and schol-
18 arships shall be competitively awarded through a merit-
19 review process. The Director may prioritize fellowships
20 that include an industry partner that provides financial
21 assistance to the applicant for direct or indirect costs.

22 **SEC. 8. NSF OUTREACH CAMPAIGN.**

23 (a) IN GENERAL.—The Director shall carry out a na-
24 tionwide outreach campaign to students at elementary
25 schools, secondary schools, career and technical education

1 schools, institutions of higher education, or through other
 2 higher education and professional education programs to
 3 increase awareness about AI or quantum education oppor-
 4 tunities at the National Science Foundation.

5 (b) PRIORITY.—In carrying out such campaign, the
 6 Director shall prioritize outreach to underserved and rural
 7 areas.

8 **SEC. 9. COMMUNITY COLLEGE AND VOCATIONAL SCHOOL**
 9 **CENTERS OF AI EXCELLENCE.**

10 (a) DEFINITIONS.—In this section:

11 (1) AREA CAREER AND TECHNICAL EDUCATION
 12 SCHOOL.—The term “area career and technical edu-
 13 cation school” has the meaning given the term in
 14 section 3 of the Carl D. Perkins Career and Tech-
 15 nical Education Act of 2006 (20 U.S.C. 2302).

16 (2) ELIGIBLE APPLICANT.—The term “eligible
 17 applicant” means a community college, vocational
 18 school, or area career and technical education school,
 19 in partnership with 1 or more of the following:

20 (A) A Federal, State, local, or Tribal gov-
 21 ernment entity.

22 (B) An institution of higher education.

23 (C) An entity in private industry.

24 (D) An economic development organization
 25 or venture development organization.

1 (E) A labor organization.

2 (F) A nonprofit organization.

3 (3) VENTURE DEVELOPMENT ORGANIZATION.—

4 The term “venture development organization” has
5 the meaning given the term in section 27(a) of the
6 Stevenson-Wydler Act of 1980 (15 U.S.C. 3722(a)).

7 (4) VOCATIONAL SCHOOL.—The term “voca-
8 tional school” has the meaning given the term “post-
9 secondary vocational institution” in section 102(e) of
10 the Higher Education Act of 1965 (20 U.S.C.
11 1002(e)).

12 (b) ESTABLISHMENT OF CENTERS OF AI EXCEL-
13 LIGENCE.—The Director, in coordination with the Regional
14 Technology Hubs program at the Department of Com-
15 merce and the Regional Innovation Engines program at
16 the National Science Foundation, shall choose not less
17 than 5 regionally and geographically diverse eligible appli-
18 cants to be designated as Community College and Voca-
19 tional School Centers of AI Excellence (referred to in this
20 section as “Centers of AI Excellence”).

21 (c) EPSCoR STATE PARTICIPATION.—Not less than
22 20 percent of designated Community College and Voca-
23 tional School Centers of AI Excellence shall be eligible ap-
24 plicants that are located in a State jurisdiction eligible to
25 participate in the National Science Foundation’s Estab-

1 lished Program to Stimulate Competitive Research under
2 section 113 of the National Science Foundation Author-
3 ization Act of 1988 (42 U.S.C. 1862g).

4 (d) APPLICATION.—An eligible applicant that desires
5 to be designated as a Center of AI Excellence shall submit
6 an application to the Director at such time, in such man-
7 ner, and containing such information as the Director may
8 reasonably require. Such application shall specify a focus
9 area for the Center of AI Excellence, which may be any
10 of the following:

11 (1) AI education and training related to agri-
12 culture.

13 (2) AI education and training related to manu-
14 facturing.

15 (3) AI education.

16 (4) AI education and training related to an-
17 other focus area as specified by the eligible appli-
18 cant.

19 (e) ACTIVITIES.—A designated Center of AI Excel-
20 lence shall develop and disseminate information about best
21 practices for—

22 (1) artificial intelligence research and education
23 at community colleges and area career and technical
24 education schools;

1 (2) methods to scale up successful programs
2 that perform research or provide education on artificial
3 intelligence at community colleges and area career and technical education schools;

5 (3) providing hands-on research opportunities
6 on artificial intelligence and learning opportunities
7 for students that are enabled through artificial intelligence; and
8

9 (4) identifying pathways for students to jobs
10 that are enabled by artificial intelligence.

11 **SEC. 10. AWARD PROGRAM FOR RESEARCH ON AI IN EDUCATION.**
12

13 (a) **ELIGIBLE ENTITY.**—In this section, the term “eligible entity” means—
14

15 (1) an institution of higher education;

16 (2) a nonprofit organization; or

17 (3) a consortium of 1 or more institution of
18 higher education or a nonprofit organization and 1
19 or more private entities.

20 (b) **PROGRAM AUTHORIZED.**—

21 (1) **IN GENERAL.**—The Director shall make
22 awards, on a competitive, merit-reviewed basis, to eligible entities, to enable the eligible entities to promote research on teaching models, tools, and materials for artificial intelligence and integration with
23
24
25

1 other key emerging technologies, such as quantum
2 information science and technologies and photonics,
3 with a focus on teaching and learning for kinder-
4 garten through grade 12 students who are from low-
5 income, rural, or Tribal populations.

6 (2) METHOD.—The Director may carry out this
7 section by making awards through new or existing
8 programs.

9 (c) APPLICATION.—

10 (1) IN GENERAL.—An eligible entity that de-
11 sires to receive an award under this section shall
12 submit an application to the Director at such time,
13 in such manner, and containing such information as
14 the Director may require.

15 (2) CONTENTS.—An application described in
16 paragraph (1) shall include—

17 (A) a description of the student demo-
18 graphics on which the research supported under
19 the award intends to focus;

20 (B) a description of any regional partner-
21 ships the eligible entity plans to utilize to carry
22 out the award;

23 (C) with respect to an application that con-
24 cerns the use or integration of artificial intel-
25 ligence, a description of potential ethical con-

1 cerns and implications of teacher and student
2 interactions with artificial intelligence systems;

3 (D) a description of how the research on
4 teaching models, tools, and materials were de-
5 veloped in consultation with other educators,
6 academia, industry, and civil society organiza-
7 tions; and

8 (E) such other information as the Director
9 may require.

10 (d) USE OF AWARD FUNDS.—An eligible entity that
11 receives an award under this section shall carry out a pro-
12 gram described in subsection (b)(1) that—

13 (1) emphasizes preparing incoming teachers to
14 integrate artificial intelligence, key emerging tech-
15 nologies, and computational thinking into their
16 classrooms in innovative ways; and

17 (2) supports research to develop, pilot, fully im-
18 plement, or test areas, such as—

19 (A) instructional materials and high-qual-
20 ity learning opportunities for teaching artificial
21 intelligence and key emerging technologies;

22 (B) models for the preparation of new
23 teachers who will teach artificial intelligence
24 and key emerging technologies;

1 (C) scalable models of professional develop-
2 ment and ongoing support for teachers; and

3 (D) tools and models for teaching and
4 learning aimed at supporting student success
5 and inclusion in artificial intelligence and key
6 emerging technologies across diverse popu-
7 lations, including low-income, rural, and Tribal
8 populations.

9 **SEC. 11. NATIONAL SCIENCE FOUNDATION AWARDS FOR**
10 **ARTIFICIAL INTELLIGENCE RESOURCES.**

11 (a) DEFINITIONS.—In this section:

12 (1) ELIGIBLE ENTITY.—The term “eligible enti-
13 ty” means—

14 (A) an elementary school or secondary
15 school, as defined in section 8101 of the Ele-
16 mentary and Secondary Education Act of 1965
17 (20 U.S.C. 8101);

18 (B) an institution of higher education, in-
19 cluding—

20 (i) an emerging research institution;

21 (ii) an EPSCoR institution;

22 (iii) a minority-serving institution;

23 (iv) a historically Black college or uni-
24 versity;

25 (v) a Tribal College or University; or

1 (vi) a community college; or

2 (C) a technical and vocational school.

3 ~~(2) TECHNICAL AND VOCATIONAL SCHOOL.—~~

4 The term “technical and vocational school” has the
5 meaning given the term “area career and technical
6 school” in section 3 of the Carl D. Perkins Career
7 and Technical Education Act of 2006 (20 U.S.C.
8 2302).

9 (b) AWARDS AUTHORIZED.—The Director shall make
10 awards to eligible entities to enable the eligible entities to
11 provide or increase access to artificial intelligence tools
12 and applications to the students and researchers served
13 by the eligible entities.

14 (c) PREFERENCE.—In making awards under sub-
15 section (b), the Director shall give preference to eligible
16 entities that—

17 (1) expand the geographic diversity of funded
18 entities; or

19 (2) are emerging research institutions, EPSCoR
20 institutions, minority-serving institutions, historically
21 Black colleges and universities, Tribal Colleges or
22 Universities, community colleges, or technical and
23 vocational schools.

1 **SEC. 12. NATIONAL SCIENCE FOUNDATION NATIONAL STEM**
 2 **TEACHERS CORPS.**

3 Section 10311(c)(6) of the Research and Develop-
 4 ment, Competition, and Innovation Act (42 U.S.C.
 5 18991(c)(6)) is amended—

6 (1) in subparagraph (F), by striking “and”
 7 after the semicolon;

8 (2) in subparagraph (G), by striking the period
 9 at the end and inserting “; and”; and

10 (3) by adding at the end the following:

11 “(H) incorporating artificial intelligence
 12 skills development into the priorities of the Na-
 13 tional STEM Teacher Corps, including
 14 prioritizing the development of artificial intel-
 15 ligence best practices for high school teachers,
 16 created in consultation with other educators
 17 and academia.”.

18 **SEC. 13. GUIDANCE FOR THE INTRODUCTION AND USE OF**
 19 **ARTIFICIAL INTELLIGENCE IN PREKINDER-**
 20 **GARTEN THROUGH GRADE 12.**

21 (a) IN GENERAL.—Not later than 2 years after the
 22 date of enactment of this Act, the Director, in coordina-
 23 tion with the Secretary of Education, the Director of the
 24 National Institute of Standards and Technology, and the
 25 Director of the Office of Science and Technology Policy,
 26 shall develop and make publicly available guidance for the

1 introduction and use of artificial intelligence in prekindergarten through grade 12 classrooms.

3 (b) CONSIDERATIONS.—The guidance required under
4 subsection (a) shall include—

5 (1) considerations for—

6 (A) the use of artificial intelligence in pre-
7 kindergarten through grade 12 classrooms in
8 rural areas and economically distressed areas;
9 and

10 (B) the differing applications of artificial
11 intelligence in STEM and the liberal arts; and

12 (2) a description of how the guidance was devel-
13 oped in consultation with educators, academia, in-
14 dustry, and civil society organizations.

15 **SEC. 14. NSF GRAND CHALLENGES RELATING TO ARTIFI-**
16 **CIAL INTELLIGENCE EDUCATION AND TRAIN-**
17 **ING.**

18 (a) GRAND CHALLENGE.—The term “grand chal-
19 lenge” means a prize competition under section 24 of the
20 Stevenson-Wydler Technology Innovation Act of 1980 (15
21 U.S.C. 3719).

22 (b) IN GENERAL.—The Director, in coordination
23 with the Secretaries of Labor and Education, shall sup-
24 port grand challenges to stimulate innovation regarding—

1 (1) how to train 1,000,000 or more workers, in-
2 cluding educators, technical and vocational workers,
3 and professionals, in the United States by 2028 in
4 areas related to the creation, deployment, or use of
5 artificial intelligence, such as foundational knowl-
6 edge, critical thinking, programming skills, machine
7 learning, or deep learning;

8 (2) how to overcome barriers in the develop-
9 ment of the artificial intelligence education and
10 training;

11 (3) methods and strategies for creating artifi-
12 cial intelligence education and training that does not
13 displace workers, including teachers, in the work-
14 force;

15 (4) ways to increase the number of women who
16 receive artificial intelligence education and training;
17 and

18 (5) how to ensure rural areas of the United
19 States are able to benefit from artificial intelligence
20 education and training.

21 **SEC. 15. GIFT AUTHORITY.**

22 In carrying out this Act, the Director may receive and
23 use funds donated by others, including receipt and use of
24 donations from private entities to fund scholarships and
25 fellowships authorized under this Act.

1 **SECTION 1. SHORT TITLE.**

2 *This Act may be cited as the “NSF AI Education Act*
3 *of 2024”.*

4 **SEC. 2. DEFINITIONS.**

5 *In this Act:*

6 (1) *ESEA TERMS.*—*The terms “educational serv-*
7 *ice agency”, “elementary school”, “high school”,*
8 *“local educational agency”, “secondary school”,*
9 *“State educational agency”, and “universal design for*
10 *learning” have the meaning given those terms in sec-*
11 *tion 8101 of the Elementary and Secondary Edu-*
12 *cation Act of 1965 (20 U.S.C. 7801).*

13 (2) *ARTIFICIAL INTELLIGENCE; AI.*—*The term*
14 *“artificial intelligence” or “AI” has the meaning*
15 *given such term in section 5002 of the William M.*
16 *(Mac) Thornberry National Defense Authorization Act*
17 *for Fiscal Year 2021 (15 U.S.C. 9401).*

18 (3) *COMMUNITY COLLEGE.*—*The term “commu-*
19 *nity college” means—*

20 (A) *an institution that is a junior or com-*
21 *munity college, as such term is defined in section*
22 *312(f) of the Higher Education Act of 1965 (20*
23 *U.S.C. 1058(f));*

24 (B) *a degree-granting public institution of*
25 *higher education at which—*

1 (i) *the highest degree awarded is an as-*
 2 *sociate degree; or*

3 (ii) *an associate degree is the most fre-*
 4 *quently awarded degree;*

5 (C) *an eligible Tribal College or University;*

6 or

7 (D) *a branch campus of a four-year public*
 8 *institution of higher education, if, at such*
 9 *branch campus—*

10 (i) *the highest degree awarded is an as-*
 11 *sociate degree; or*

12 (ii) *an associate degree is the most fre-*
 13 *quently awarded degree.*

14 (4) *DIRECTOR.—The term “Director” means the*
 15 *Director of the National Science Foundation.*

16 (5) *EMERGING RESEARCH INSTITUTION.—The*
 17 *term “emerging research institution” has the meaning*
 18 *given the term in section 10002 of the Research and*
 19 *Development, Competition, and Innovation Act (42*
 20 *U.S.C. 18901).*

21 (6) *EPSCoR INSTITUTION.—The term “EPSCoR*
 22 *institution” means an institution of higher education,*
 23 *nonprofit organization, or other institution located in*
 24 *a jurisdiction eligible to participate in the Estab-*
 25 *lished Program to Stimulate Competitive Research*

1 *under section 113 of the National Science Foundation*
2 *Authorization Act of 1988 (42 U.S.C. 1862g).*

3 (7) *FOREIGN COUNTRY OF CONCERN.*—*The term*
4 *“foreign country of concern” means a country that is*
5 *a covered nation, as defined in section 4872(d) of title*
6 *10, United States Code.*

7 (8) *FOREIGN ENTITY OF CONCERN.*—*The term*
8 *“foreign entity of concern” has the meaning given the*
9 *term in section 10612 of the Research and Develop-*
10 *ment, Competition, and Innovation Act (42 U.S.C.*
11 *19221).*

12 (9) *HISTORICALLY BLACK COLLEGE AND UNIVER-*
13 *SITY.*—*The term “historically Black college and uni-*
14 *versity” has the meaning given the term “part B in-*
15 *stitution” in section 322 of the Higher Education Act*
16 *of 1965 (20 U.S.C. 1061).*

17 (10) *INSTITUTION OF HIGHER EDUCATION.*—*The*
18 *term “institution of higher education” has the mean-*
19 *ing given the term in section 101(a) of the Higher*
20 *Education Act of 1965 (20 U.S.C. 1001(a)).*

21 (11) *KEY EMERGING TECHNOLOGIES.*—*The term*
22 *“key emerging technologies” means the technologies*
23 *included in the initial list of key technology focus*
24 *areas set forth by section 10387(c) of the Research*

1 *and Development, Competition, and Innovation Act*
2 *(42 U.S.C. 19107(c)), photonics, and electronics.*

3 (12) *LABOR ORGANIZATION.*—*The term “labor*
4 *organization” has the meaning given the term in sec-*
5 *tion 2(5) of the National Labor Relations Act (29*
6 *U.S.C. 152(5)).*

7 (13) *MINORITY-SERVING INSTITUTION.*—*The*
8 *term “minority-serving institution” means an insti-*
9 *tution defined in any of paragraphs (1) through (7)*
10 *of section 371(a) of the Higher Education Act of 1965*
11 *(20 U.S.C. 7801).*

12 (14) *NATIONAL LABORATORY.*—*The term “Na-*
13 *tional Laboratory” has the meaning given that term*
14 *in section 2 of the Energy Policy Act of 2005 (42*
15 *U.S.C. 15801).*

16 (15) *NONPROFIT ORGANIZATION.*—*The term*
17 *“nonprofit organization” means an organization*
18 *which is described in section 501(c)(3) of the Internal*
19 *Revenue Code of 1986 and exempt from tax under sec-*
20 *tion 501(a) of such Code.*

21 (16) *QUANTUM HYBRID COMPUTING.*—*The term*
22 *“quantum hybrid computing” means the use of quan-*
23 *tum computing in conjunction with classical com-*
24 *puting.*

1 (17) *QUANTUM INFORMATION SCIENCE.*—*The*
2 *term “quantum information science” means the use of*
3 *the laws of quantum physics for the storage, trans-*
4 *mission, manipulation, computing, or measurement*
5 *of information.*

6 (18) *RURAL-LOCATED INSTITUTION OF HIGHER*
7 *EDUCATION.*—*The term “rural-located institution of*
8 *higher education” means an institution of higher edu-*
9 *cation that is located in or near areas that are not*
10 *classified as urban by the Census Bureau.*

11 (19) *RURAL-SERVING INSTITUTION OF HIGHER*
12 *EDUCATION.*—*The term “rural-serving institution of*
13 *higher education” means an institution of higher edu-*
14 *cation that—*

15 (A) *primarily serves areas that are not clas-*
16 *sified as urban by the Census Bureau; and*

17 (B) *offers degrees that are unique and help-*
18 *ful to rural regions that are not classified as*
19 *urban by the Census Bureau.*

20 (20) *STEM.*—*The term “STEM” means science,*
21 *technology, engineering, and mathematics, including*
22 *computer science.*

23 (21) *TRIBAL COLLEGE OR UNIVERSITY.*—*The*
24 *term “Tribal College or University” has the meaning*

1 *given the term in section 316(b) of the Higher Edu-*
 2 *cation Act of 1965 (20 U.S.C. 1059c(b)).*

3 **SEC. 3. UNDERGRADUATE SCHOLARSHIPS FOR ARTIFICIAL**
 4 **INTELLIGENCE EDUCATION.**

5 *(a) SCHOLARSHIPS RELATED TO AI OR QUANTUM HY-*
 6 *BRID COMPUTING.—*

7 *(1) IN GENERAL.—Subject to section 15, the Di-*
 8 *rector shall award merit- or need-based scholarships*
 9 *to undergraduate students at institutions of higher*
 10 *education in order to enable such students to study—*

11 *(A) the development, deployment, integra-*
 12 *tion, or application of artificial intelligence; or*

13 *(B) quantum hybrid computing.*

14 *(2) SCHOLARSHIPS.—Scholarships awarded*
 15 *under paragraph (1) shall be in the form of annual*
 16 *grant awards for not more than a 4-year period in*
 17 *amounts that cover the cost of tuition, education-re-*
 18 *lated fees, and a stipend. Such scholarships shall be*
 19 *paid directly to the institution of higher education in*
 20 *which the student is enrolled.*

21 *(b) SCHOLARSHIPS RELATED TO AI AND AGRICULTURE.—*
 22 *CULTURE.—*

23 *(1) IN GENERAL.—Subject to section 15, the Di-*
 24 *rector shall award merit- or need-based scholarships*

1 to undergraduate students at institutions of higher
2 education in order to enable such students to study—

3 (A) artificial intelligence and agriculture;

4 or

5 (B) the integration of artificial intelligence
6 into agricultural operations, prediction, and de-
7 cisionmaking.

8 (2) *PRIORITY.*—In awarding scholarships under
9 this subsection, the Director shall give preference to
10 students who are attending rural-located institutions
11 of higher education, rural-serving institutions of high-
12 er education, Tribal Colleges or Universities, or mi-
13 nority-serving institutions (including historically
14 Black colleges and universities).

15 (3) *SCHOLARSHIPS.*—Scholarships awarded
16 under paragraph (1) shall be in the form of annual
17 grant awards for not more than a 4-year period in
18 amounts that cover the cost of tuition, education-re-
19 lated fees, and a stipend. Such scholarships shall be
20 paid directly to the institution of higher education in
21 which the student is enrolled.

22 (c) *SCHOLARSHIPS RELATED TO AI AND EDU-*
23 *CATION.*—

24 (1) *IN GENERAL.*—Subject to section 15, the Di-
25 rector shall award merit- or need-based scholarships

1 to undergraduate students at institutions of higher
2 education in order to enable such students to study
3 the teaching of artificial intelligence and artificial in-
4 telligence skills at elementary schools, secondary
5 schools, career and technical education schools, insti-
6 tutions of higher education, or through other higher
7 education and professional education programs.

8 (2) *SCHOLARSHIPS.*—Scholarships awarded
9 under paragraph (1) shall be in the form of annual
10 grant awards for not more than a 4-year period that
11 cover the cost of tuition, education-related fees, and a
12 stipend. Such scholarships shall be paid directly to
13 the institution of higher education in which the stu-
14 dent is enrolled.

15 (d) *SCHOLARSHIPS RELATED TO AI AND ADVANCED*
16 *MANUFACTURING.*—

17 (1) *IN GENERAL.*—Subject to section 15, the Di-
18 rector shall award merit- or need-based scholarships
19 to undergraduate students at institutions of higher
20 education in order to enable such students to study—

21 (A) artificial intelligence and advanced
22 manufacturing; or

23 (B) the integration of artificial intelligence
24 into advanced manufacturing operations.

1 (2) *SCHOLARSHIPS.*—*Scholarships awarded*
 2 *under paragraph (1) shall be in the form of annual*
 3 *grant awards for a 4-year period that cover the cost*
 4 *of tuition, education-related fees, and a stipend. Such*
 5 *scholarships shall be paid directly to the institution*
 6 *of higher education in which the student is enrolled.*

7 (e) *METHOD.*—*The Director may carry out this section*
 8 *by making awards through new or existing programs.*

9 **SEC. 4. GRADUATE SCHOLARSHIPS FOR ARTIFICIAL INTEL-**
 10 **LIGENCE EDUCATION.**

11 (a) *GRADUATE SCHOLARSHIPS RELATED TO AI OR*
 12 *QUANTUM HYBRID COMPUTING.*—*Subject to section 15, the*
 13 *Director shall award merit- or need-based scholarships to*
 14 *graduate students at institutions of higher education in*
 15 *order to enable such students to study—*

16 (1) *the development, deployment, integration, or*
 17 *application of artificial intelligence; or*

18 (2) *quantum hybrid computing.*

19 (b) *SCHOLARSHIPS RELATED TO AI AND AGRICULTURE.*—

21 (1) *IN GENERAL.*—*Subject to section 15, the Di-*
 22 *rector shall award merit- or need-based scholarships*
 23 *to graduate students at institutions of higher edu-*
 24 *cation in order to enable such students to study—*

1 (A) *artificial intelligence and agriculture;*

2 *or*

3 (B) *the integration of artificial intelligence*
4 *into agricultural operations, prediction, and de-*
5 *cisionmaking.*

6 (2) *PRIORITY.*—*In awarding scholarships under*
7 *this subsection, the Director shall give preference to*
8 *students who are attending rural-located institutions*
9 *of higher education, rural-serving institutions of high-*
10 *er education, Tribal Colleges or Universities, or mi-*
11 *nority-serving institutions (including historically*
12 *Black colleges and universities).*

13 (c) *GRADUATE SCHOLARSHIPS RELATED TO AI AND*
14 *EDUCATION.*—*Subject to section 15, the Director shall*
15 *award merit- or need-based scholarships to graduate stu-*
16 *dents at institutions of higher education in order to enable*
17 *such students to study the teaching of artificial intelligence*
18 *and artificial intelligence skills at elementary schools, sec-*
19 *ondary schools, career and technical education schools, in-*
20 *stitutions of higher education, or through other higher edu-*
21 *cation and professional education programs.*

22 (d) *GRADUATE SCHOLARSHIPS RELATED TO AI AND*
23 *ADVANCED MANUFACTURING.*—*Subject to section 15, the*
24 *Director shall award merit- or need-based scholarships to*

1 *graduate students at institutions of higher education in*
 2 *order to enable such students to study—*

3 *(1) artificial intelligence and advanced manufac-*
 4 *turing; or*

5 *(2) the integration of artificial intelligence into*
 6 *advanced manufacturing operations.*

7 *(e) SCHOLARSHIPS.—Scholarships awarded under this*
 8 *section shall be in the form of annual grant awards for not*
 9 *more than a 3-year period that cover the cost of tuition,*
 10 *education-related fees, and a stipend. Such scholarships*
 11 *shall be paid directly to the institution of higher education*
 12 *in which the student is enrolled.*

13 *(f) METHOD.—The Director may carry out this section*
 14 *by making awards through new or existing programs.*

15 **SEC. 5. NSF ARTIFICIAL INTELLIGENCE PROFESSIONAL DE-**
 16 **VELOPMENT FELLOWSHIPS.**

17 *(a) IN GENERAL.—Subject to section 15, the Director*
 18 *shall establish a program to promote the exchange of ideas*
 19 *and encourage collaborations between institutions of higher*
 20 *education and industry partners in the fields of artificial*
 21 *intelligence and key emerging technologies, including*
 22 *through fellowships for students, teachers, faculty at institu-*
 23 *tions of higher education, and industry professionals.*

24 *(b) FELLOWSHIPS.—*

1 (1) *IN GENERAL.*—*The Director shall award*
2 *merit-based fellowships for professionals for profes-*
3 *sional development programs in STEM fields or the*
4 *field of education that are administered by or affili-*
5 *ated with institutions of higher education, in order to*
6 *enable fellowship recipients to attain skills or train-*
7 *ing in AI-related subjects, including—*

8 (A) *the development, deployment, integra-*
9 *tion, or application of artificial intelligence;*

10 (B) *prompt engineering; or*

11 (C) *quantum hybrid computing.*

12 (2) *FELLOWSHIP AWARDS.*—*Awards under this*
13 *subsection shall be in the form of one annual award*
14 *that covers the cost of tuition, education-related fees,*
15 *and a stipend. Such awards shall be paid directly to*
16 *the institution of higher education that administers,*
17 *or that is affiliated with, the program in which the*
18 *fellowship recipient is participating.*

19 (c) *APPLICATION.*—*An applicant for a fellowship*
20 *under this section shall submit to the Director an applica-*
21 *tion at such time, in such manner, and containing such*
22 *information as the Director may require. The Director shall*
23 *set minimum standards for participation in the fellowship*
24 *program established under this section.*

1 (d) *METHOD.*—*The Director may carry out this sec-*
2 *tion through new or existing programs.*

3 **SEC. 6. ARTIFICIAL INTELLIGENCE TRAINING FOR LAND-**
4 **GRANT COLLEGES AND UNIVERSITIES.**

5 (a) *IN GENERAL.*—*Subject to section 15, the Secretary*
6 *of Agriculture, acting through the Director of the National*
7 *Institute of Food and Agriculture, in collaboration with the*
8 *Director of the National Science Foundation, shall award*
9 *grants to land-grant colleges and universities (as defined*
10 *in section 1404 of the National Agricultural Research, Ex-*
11 *tension, and Teaching Policy Act of 1977 (7 U.S.C. 3103))*
12 *for artificial intelligence in agriculture.*

13 (b) *USE OF FUNDS.*—*A grant awarded under this sec-*
14 *tion may be used for—*

15 (1) *research and development on the use of artifi-*
16 *cial intelligence in agriculture or the integration of*
17 *artificial intelligence into agricultural operations,*
18 *predictions, and decision making;*

19 (2) *the dissemination of educational resources for*
20 *artificial intelligence in rural areas; and*

21 (3) *acquisition and deployment of artificial in-*
22 *telligence tools for agriculture.*

23 (c) *METHOD.*—*The Director may carry out this section*
24 *through new or existing programs.*

1 **SEC. 7. QUANTUM FELLOWSHIPS AND SCHOLARSHIPS.**

2 (a) *IN GENERAL.*—*The Director may establish or use*
3 *existing programs to support fellowships and scholarships*
4 *for students at institutions of higher education for the pur-*
5 *pose of—*

6 (1) *increasing quantum information science, en-*
7 *gineering, and technology exposure for undergraduate*
8 *and graduate STEM students; and*

9 (2) *increasing post-graduation employment op-*
10 *portunities for STEM students who demonstrate in-*
11 *terest in pursuing careers in quantum information*
12 *science, engineering, and technology, or fields that*
13 *support the quantum industry.*

14 (b) *REQUIREMENT.*—*Eligible participants in the fel-*
15 *lowship and scholarship program shall be enrolled in or*
16 *have graduated from a STEM degree program at an insti-*
17 *tution of higher education.*

18 (c) *CONSIDERATIONS.*—*Eligible fellowships and schol-*
19 *arships may include temporary quantum-related positions*
20 *at State or Federal agencies, National Laboratories, private*
21 *sector entities, institutions of higher education, or other*
22 *quantum-relevant entities, as determined appropriate by*
23 *the Director.*

24 (d) *COMPETITIVE AWARDS.*—*Fellowships and scholar-*
25 *ships shall be competitively awarded through a merit-review*
26 *process. The Director may prioritize fellowships that in-*

1 *clude an industry partner that provides financial assist-*
2 *ance to the applicant for direct or indirect costs.*

3 *(e) FELLOWS IN FEDERAL AGENCIES SUBJECT TO*
4 *OMB ETHICS REQUIREMENTS.—An individual partici-*
5 *parting in a fellowship with an assignment at a Federal*
6 *agency shall be subject to the ethics requirements prescribed*
7 *by the Director of the Office of Management and Budget*
8 *that apply to an employee of such agency.*

9 *(f) METHOD.—The Director may carry out this section*
10 *through new or existing programs.*

11 **SEC. 8. NSF OUTREACH CAMPAIGN.**

12 *(a) IN GENERAL.—Subject to section 15, the Director*
13 *shall carry out a nationwide outreach campaign to stu-*
14 *dents, teachers, principals, and other school leaders at ele-*
15 *mentary schools, secondary schools, career and technical*
16 *education schools, institutions of higher education, or*
17 *through other higher education and professional education*
18 *programs to increase awareness about AI or quantum edu-*
19 *cation opportunities at the National Science Foundation.*

20 *(b) PRIORITY.—In carrying out such campaign, the*
21 *Director shall prioritize outreach to underserved and rural*
22 *areas.*

23 *(c) METHOD.—The Director may carry out this section*
24 *through new or existing programs.*

1 **SEC. 9. COMMUNITY COLLEGE AND VOCATIONAL SCHOOL**
 2 **CENTERS OF AI EXCELLENCE.**

3 (a) *DEFINITIONS.—In this section:*

4 (1) *AREA CAREER AND TECHNICAL EDUCATION*
 5 *SCHOOL.—The term “area career and technical edu-*
 6 *cation school” has the meaning given the term in sec-*
 7 *tion 3 of the Carl D. Perkins Career and Technical*
 8 *Education Act of 2006 (20 U.S.C. 2302).*

9 (2) *ELIGIBLE APPLICANT.—The term “eligible*
 10 *applicant” means a community college, vocational*
 11 *school, or area career and technical education school*
 12 *in partnership with 1 or more of the following:*

13 (A) *A Federal, State, local, or Tribal gov-*
 14 *ernment entity.*

15 (B) *An institution of higher education.*

16 (C) *An entity in private industry.*

17 (D) *An economic development organization*
 18 *or venture development organization.*

19 (E) *A labor organization or a nonprofit or-*
 20 *ganization if such organization partners with an*
 21 *entity described in any of subparagraphs (A)*
 22 *through (D).*

23 (3) *VENTURE DEVELOPMENT ORGANIZATION.—*
 24 *The term “venture development organization” has the*
 25 *meaning given the term in section 27(a) of the Ste-*
 26 *venson-Wydler Act of 1980 (15 U.S.C. 3722(a)).*

1 (4) *VOCATIONAL SCHOOL.*—*The term “vocational*
2 *school” has the meaning given the term “postsec-*
3 *ondary vocational institution” in section 102(c) of*
4 *the Higher Education Act of 1965 (20 U.S.C.*
5 *1002(c)).*

6 (b) *ESTABLISHMENT OF CENTERS OF AI EXCEL-*
7 *LENCE.*—*Subject to section 15, the Director, in coordination*
8 *with the Regional Technology Hubs program at the Depart-*
9 *ment of Commerce and the Regional Innovation Engines*
10 *program at the National Science Foundation, shall choose*
11 *not less than 5 regionally and geographically diverse eligi-*
12 *ble applicants to be designated as Community College and*
13 *Vocational School Centers of AI Excellence (referred to in*
14 *this section as “Centers of AI Excellence”).*

15 (c) *EPSCOR STATE PARTICIPATION.*—*Not less than*
16 *20 percent of designated Community College and Vocational*
17 *School Centers of AI Excellence shall be eligible applicants*
18 *that are located in a State jurisdiction eligible to partici-*
19 *pate in the National Science Foundation’s Established Pro-*
20 *gram to Stimulate Competitive Research under section 113*
21 *of the National Science Foundation Authorization Act of*
22 *1988 (42 U.S.C. 1862g).*

23 (d) *APPLICATION.*—*An eligible applicant that desires*
24 *to be designated as a Center of AI Excellence shall submit*
25 *an application to the Director at such time, in such man-*

1 ner, and containing such information as the Director may
2 reasonably require. Such application shall specify a focus
3 area or areas for the Center of AI Excellence, which may
4 be any of the following:

5 (1) AI education and training related to agri-
6 culture.

7 (2) AI education and training related to manu-
8 facturing.

9 (3) AI education and training related to appli-
10 cations of AI-based technology and AI literacy.

11 (4) AI education and training related to another
12 focus area as specified by the eligible applicant.

13 (e) *ACTIVITIES*.—A designated Center of AI Excellence
14 shall develop and disseminate information about best prac-
15 tices for—

16 (1) artificial intelligence research and education
17 at community colleges and area career and technical
18 education schools;

19 (2) methods to scale up successful programs that
20 perform research or provide education on artificial
21 intelligence at community colleges and area career
22 and technical education schools;

23 (3) providing hands-on research opportunities on
24 artificial intelligence and learning opportunities for

1 *students that are enabled through artificial intel-*
2 *ligence; and*

3 *(4) identifying pathways to employment for stu-*
4 *dents that are enabled by artificial intelligence.*

5 *(f) PERFORMANCE MEASUREMENT, TRANSPARENCY,*
6 *AND ACCOUNTABILITY.—*

7 *(1) METRICS, STANDARDS AND ASSESSMENT.—*

8 *The Director, in coordination with the Regional Tech-*
9 *nology Hubs program at the Department of Com-*
10 *merce and the Regional Innovation Engines program*
11 *at the National Science Foundation, shall develop*
12 *metrics to assess, and shall assess, the effectiveness of*
13 *each designated Center of AI Excellence in carrying*
14 *out the activities described in subsection (e).*

15 *(2) FINAL REPORTS BY RECIPIENTS OF STRAT-*
16 *EGY IMPLEMENTATION GRANTS AND COOPERATIVE*
17 *AGREEMENTS.—The Director shall require each Cen-*
18 *ter of AI Excellence designated under this section to*
19 *submit to the Director a report on the activities of the*
20 *Center of AI Excellence that are supported by Federal*
21 *funds or Federal cooperative agreements.*

22 *(g) ANNUAL REPORTS TO CONGRESS.—Not less fre-*
23 *quently than once each year, the Director shall submit to*
24 *the appropriate committees of Congress an annual report*
25 *on the results of the assessments conducted by the Director*

1 *under subsection (f)(1) during the period covered by the re-*
 2 *port.*

3 *(h) METHOD.—The Director may carry out this sec-*
 4 *tion through new or existing programs.*

5 *(i) SUNSET.—The section shall cease to be effective,*
 6 *and the activities authorized under this section shall termi-*
 7 *nate on the date that is 7 years after the date of enactment*
 8 *of this Act.*

9 **SEC. 10. AWARD PROGRAM FOR RESEARCH ON AI IN EDU-**
 10 **CATION.**

11 *(a) ELIGIBLE ENTITY.—In this section, the term “eli-*
 12 *gible entity” means—*

13 *(1) an institution of higher education;*

14 *(2) a nonprofit organization; or*

15 *(3) a consortium of 1 or more institution of*
 16 *higher education or a nonprofit organization and 1 or*
 17 *more private entities.*

18 *(b) PROGRAM AUTHORIZED.—*

19 *(1) IN GENERAL.—Subject to section 15, the Di-*
 20 *rector shall make awards, on a competitive, merit-re-*
 21 *viewed basis, to eligible entities, to enable the eligible*
 22 *entities to promote research on teaching models, tools,*
 23 *and materials for artificial intelligence and integra-*
 24 *tion with other key emerging technologies, such as*
 25 *quantum information science and technologies and*

1 *photonics, with a focus on teaching and learning for*
2 *elementary school and secondary school students who*
3 *are from low-income, rural, or Tribal populations.*

4 (2) *METHOD.—The Director may carry out this*
5 *section by making awards through new or existing*
6 *programs.*

7 (c) *APPLICATION.—*

8 (1) *IN GENERAL.—An eligible entity that desires*
9 *to receive an award under this section shall submit*
10 *an application to the Director at such time, in such*
11 *manner, and containing such information as the Di-*
12 *rector may require.*

13 (2) *CONTENTS.—An application described in*
14 *paragraph (1) shall include—*

15 (A) *a description of the student demo-*
16 *graphics on which the research supported under*
17 *the award intends to focus;*

18 (B) *a description of any regional partner-*
19 *ships the eligible entity plans to utilize to carry*
20 *out the award;*

21 (C) *a description of how such research ac-*
22 *tivity or activities may inform efforts to promote*
23 *the engagement and achievement of elementary*
24 *school and secondary school students in artificial*
25 *intelligence and other key emerging technologies,*

1 *such as quantum information science and tech-*
2 *nologies and photonics;*

3 *(D) with respect to an application that con-*
4 *cerns the use or integration of artificial intel-*
5 *ligence, a description of potential ethical con-*
6 *cerns and implications of teacher and student*
7 *interactions with artificial intelligence systems;*

8 *(E) a description of how the research on*
9 *teaching models, tools, and materials were devel-*
10 *oped in consultation with other educators, aca-*
11 *demia, and private sector organizations; and*

12 *(F) such other information as the Director*
13 *may require.*

14 *(d) USE OF AWARD FUNDS.—An eligible entity that*
15 *receives an award under this section shall carry out a pro-*
16 *gram described in subsection (b)(1) that—*

17 *(1) emphasizes preparing and providing profes-*
18 *sional development to teachers, principals, and other*
19 *school leaders to help them integrate artificial intel-*
20 *ligence, key emerging technologies, and computational*
21 *thinking in teaching and learning; and*

22 *(2) supports research to develop, pilot, fully im-*
23 *plement, or test areas, such as—*

24 *(A) evidence-based instructional materials*
25 *and high-quality learning opportunities for*

1 *teaching artificial intelligence and key emerging*
 2 *technologies;*

3 *(B) models for the preparation of new*
 4 *teachers who will teach artificial intelligence and*
 5 *key emerging technologies;*

6 *(C) scalable models of professional develop-*
 7 *ment and ongoing support for teachers, prin-*
 8 *cipals, and other school leaders; and*

9 *(D) tools and models for teaching and*
 10 *learning aimed at supporting student access to*
 11 *and utilization of artificial intelligence and key*
 12 *emerging technologies across diverse populations,*
 13 *including low-income, rural, and Tribal popu-*
 14 *lations.*

15 **SEC. 11. NATIONAL SCIENCE FOUNDATION AWARDS FOR**
 16 **ARTIFICIAL INTELLIGENCE RESOURCES.**

17 *(a) DEFINITIONS.—In this section:*

18 *(1) ELIGIBLE ENTITY.—The term “eligible enti-*
 19 *ty” means—*

20 *(A) a State educational agency, local edu-*
 21 *cational agency, or educational service agency;*

22 *(B) an institution of higher education, in-*
 23 *cluding—*

24 *(i) an emerging research institution;*

25 *(ii) an EPSCoR institution;*

- 1 (iii) a minority-serving institution;
 2 (iv) a historically Black college or uni-
 3 versity;
 4 (v) a Tribal College or University; or
 5 (vi) a community college; or
 6 (C) a technical and vocational school.

7 (2) *TECHNICAL AND VOCATIONAL SCHOOL.*—The
 8 term “technical and vocational school” has the mean-
 9 ing given the term “area career and technical school”
 10 in section 3 of the Carl D. Perkins Career and Tech-
 11 nical Education Act of 2006 (20 U.S.C. 2302).

12 (b) *AWARDS AUTHORIZED.*—Subject to section 15, the
 13 Director shall make awards to eligible entities to enable the
 14 eligible entities to provide or increase access to artificial
 15 intelligence tools and applications to the students and re-
 16 searchers served by the eligible entities.

17 (c) *PREFERENCE.*—In making awards under sub-
 18 section (b), the Director shall give preference to eligible enti-
 19 ties that—

20 (1) expand the geographic diversity of funded en-
 21 tities; or

22 (2) are emerging research institutions, EPSCoR
 23 institutions, minority-serving institutions, histori-
 24 cally Black colleges and universities, Tribal Colleges

1 or Universities, community colleges, or technical and
2 vocational schools.

3 (d) *METHOD.*—The Director may carry out this sec-
4 tion through new or existing programs.

5 **SEC. 12. GUIDANCE FOR THE INTRODUCTION AND USE OF**
6 **ARTIFICIAL INTELLIGENCE IN ELEMENTARY**
7 **AND SECONDARY EDUCATION.**

8 (a) *IN GENERAL.*—Not later than 2 years after the
9 date of enactment of this Act, the Director, in coordination
10 with the Secretary of Education, the Director of the Insti-
11 tute of Education Sciences, the Director of the National In-
12 stitute of Standards and Technology, and the Director of
13 the Office of Science and Technology Policy, shall develop
14 and make publicly available guidance for the introduction
15 and use of artificial intelligence in elementary and sec-
16 ondary education.

17 (b) *CONSIDERATIONS.*—The guidance required under
18 subsection (a) shall include—

19 (1) *considerations for—*

20 (A) *the use of artificial intelligence in ele-*
21 *mentary and secondary education in rural areas*
22 *and economically distressed areas; and*

23 (B) *the differing applications of artificial*
24 *intelligence in STEM and the liberal arts; and*

1 (2) *a description of how the guidance was devel-*
2 *oped in consultation with educators, academia, and*
3 *private sector organizations.*

4 **SEC. 13. NSF GRAND CHALLENGES RELATING TO ARTIFI-**
5 **ICIAL INTELLIGENCE EDUCATION AND TRAIN-**
6 **ING.**

7 (a) *GRAND CHALLENGE.*—*The term “grand challenge”*
8 *means a prize competition under section 24 of the Steven-*
9 *son-Wylder Technology Innovation Act of 1980 (15 U.S.C.*
10 *3719).*

11 (b) *IN GENERAL.*—*Subject to section 15, the Director,*
12 *in coordination with the Secretaries of Labor and Edu-*
13 *cation, shall support grand challenges to stimulate innova-*
14 *tion regarding—*

15 (1) *how to train 1,000,000 or more workers, in-*
16 *cluding educators, technical and vocational workers,*
17 *and professionals, in the United States by 2028 in*
18 *areas related to the creation, deployment, or use of ar-*
19 *tificial intelligence, such as foundational knowledge,*
20 *critical thinking, programming skills, machine learn-*
21 *ing, or deep learning;*

22 (2) *how to overcome barriers in the development*
23 *of the artificial intelligence education and training;*

1 (3) *methods and strategies for creating artificial*
 2 *intelligence education and training that does not dis-*
 3 *place workers, including teachers, in the workforce;*

4 (4) *ways to increase the number of women who*
 5 *receive artificial intelligence education and training;*
 6 *and*

7 (5) *how to ensure rural areas of the United*
 8 *States are able to benefit from artificial intelligence*
 9 *education and training.*

10 (c) *METHOD.*—*The Director may carry out this section*
 11 *through new or existing programs.*

12 **SEC. 14. CRITERIA ON APPROPRIATENESS OF GIFT ACCEPT-**
 13 **ANCE; PRINCIPLES FOR PUBLIC-PRIVATE**
 14 **PARTNERSHIPS.**

15 (a) *CRITERIA FOR DETERMINING APPROPRIATENESS*
 16 *OF GIFT ACCEPTANCE.*—

17 (1) *IN GENERAL.*—*Not later than 180 days after*
 18 *the date of enactment of this Act, the Director shall*
 19 *establish the criteria to be used in determining wheth-*
 20 *er the acceptance of contributions of money, services,*
 21 *use of facilities, or personal property under this Act*
 22 *would reflect unfavorably upon the ability of the Na-*
 23 *tional Science Foundation, or any employee of the*
 24 *National Science Foundation, to carry out its respon-*
 25 *sibilities or official duties in a fair, objective, and*

1 *transparent manner, or would compromise the integ-*
2 *riety or the appearance of the integrity of its programs*
3 *or any official involved in those programs.*

4 (2) *REQUIREMENTS.—*

5 (A) *VERIFICATION.—*

6 (i) *DEFINED TERM.—In this subpara-*
7 *graph, the term “entity meeting the defini-*
8 *tion of foreign ownership, control, or influ-*
9 *ence” means, with respect to a United*
10 *States entity—*

11 (I) *a foreign interest has the*
12 *power to direct or decide matters af-*
13 *fecting such entity’s management or*
14 *operations in a manner that could—*

15 (aa) *result in unauthorized*
16 *access to classified information; or*

17 (bb) *adversely affect the per-*
18 *formance of a contract or agree-*
19 *ment requiring access to classified*
20 *information; and*

21 (II) *the foreign interest is—*

22 (aa) *exercising such power*
23 *directly or indirectly;*

24 (bb) *exercising such power*
25 *through ownership of such entity’s*

1 *securities, by contractual arrange-*
2 *ments, or other similar means;*

3 *(cc) exercising such power*
4 *through its ability to control or*
5 *influence the election or appoint-*
6 *ment of 1 or more members to the*
7 *entity's governing board; or*

8 *(dd) capable of exercising*
9 *such power.*

10 *(ii) IN GENERAL.—The Director, work-*
11 *ing with relevant Federal agencies, shall re-*
12 *quire that any criteria established pursuant*
13 *to paragraph (1) include a means to verify*
14 *that no contribution has any ties to a for-*
15 *foreign entity of concern, a foreign country of*
16 *concern, or an entity meeting the definition*
17 *of foreign ownership, control, or influence.*

18 *(B) PROHIBITION.—The criteria established*
19 *pursuant to paragraph (1) shall include a prohi-*
20 *bition on the receipt of funding pursuant to the*
21 *National Science Foundation's gift authority*
22 *from either a foreign country of concern or a for-*
23 *foreign entity of concern.*

1 (3) *REVIEW OF EXISTING RULES.*—*To the extent*
2 *the criteria described in paragraph (1) have already*
3 *been established, the Director shall—*

4 (A) *conduct a review of the existing criteria;*

5 (B) *update the criteria as necessary to sat-*
6 *isfy the requirements under this subsection; and*

7 (C) *include, in the report under paragraph*
8 *(4), an explanation of the existing criteria and*
9 *any changes made to the criteria resulting from*
10 *the Director’s review.*

11 (4) *REPORT.*—*The Director shall submit a re-*
12 *port on the criteria established under this subsection*
13 *to the Committee on Commerce, Science, and Trans-*
14 *portation and the Committee on Health, Education,*
15 *Labor, and Pensions of the Senate and the Committee*
16 *on Education and the Workforce and the Committee*
17 *on Science, Space, and Technology of the House of*
18 *Representatives.*

19 (b) *PRINCIPLES FOR PUBLIC-PRIVATE PARTNER-*
20 *SHIPS.*—

21 (1) *IN GENERAL.*—*The Director shall establish*
22 *principles to guide the National Science Foundation’s*
23 *formation of public-private partnerships under this*
24 *Act to help ensure that such partnerships are aligned*
25 *with the National Science Foundation’s statutory ob-*

1 *ligations and do not reflect unfavorably upon the*
2 *ability of the National Science Foundation or any*
3 *employee of the National Science Foundation, to*
4 *carry out its responsibilities or official duties in a*
5 *fair, objective, and transparent manner, or com-*
6 *promise the integrity or the appearance of the integ-*
7 *egrity of its programs or any official involved in those*
8 *programs.*

9 (2) *REVIEW OF EXISTING PRINCIPLES.—To the*
10 *extent the principles described in paragraph (1) have*
11 *already been established, the Director shall—*

12 (A) *conduct a review of the existing prin-*
13 *ciples;*

14 (B) *update the principles as necessary to*
15 *satisfy the requirements under paragraph (1);*
16 *and*

17 (C) *include, in the report under paragraph*
18 *(3), an explanation of the existing principles*
19 *and any changes made to the principles resulting*
20 *from the Director's review.*

21 (3) *REPORT.—The Director shall submit a re-*
22 *port on the principles established under this sub-*
23 *section to the Committee on Commerce, Science, and*
24 *Transportation and the Committee on Health, Edu-*
25 *cation, Labor, and Pensions of the Senate and the*

1 *Committee on Education and the Workforce and the*
2 *Committee on Science, Space, and Technology of the*
3 *House of Representatives.*

4 **SEC. 15. ACTIVITIES SUBJECT TO FUNDING.**

5 *The activities under this Act that are subject to this*
6 *section shall only be required if sufficient funds are either*
7 *appropriated by Congress or made available to carry out*
8 *those respective requirements.*

9 **SEC. 16. RESEARCH SECURITY.**

10 *The activities authorized under this Act shall be car-*
11 *ried out in accordance with the provision of subtitle D of*
12 *title VI of the Research and Development, Competition, and*
13 *Innovation Act (42 U.S.C. 19231 et seq.; enacted as part*
14 *of division B of Public Law 117–167) and section 223 of*
15 *the William M. (Mac) Thornberry National Defense Author-*
16 *ization Act for Fiscal Year 2021 (42 U.S.C. 6605).*

17 **SEC. 17. WORKFORCE FRAMEWORKS FOR CRITICAL AND**
18 **EMERGING TECHNOLOGIES.**

19 *(a) DEFINITIONS.—*

20 *(1) IN GENERAL.—In this section, the terms*
21 *“competencies”, “workforce categories”, and “work-*
22 *force framework” have the meanings given such terms*
23 *in subsection (f) of section 2 of the National Institute*
24 *of Standards and Technology Act (15 U.S.C. 272), as*
25 *added by paragraph (2) of this subsection.*

1 (2) *AMENDMENT TO NIST ACT.*—Section 2 of
2 *such Act (15 U.S.C. 272) is amended by adding at*
3 *the end the following:*

4 “(f) *DEFINITIONS.*—*In this section:*

5 “(1) *COMPETENCIES.*—*The term ‘competencies’*
6 *means knowledge and skills.*

7 “(2) *WORKFORCE CATEGORIES.*—*The term*
8 *‘workforce categories’ means a high-level grouping of*
9 *tasks across an organization as defined by work roles*
10 *within the category.*

11 “(3) *WORKFORCE FRAMEWORK.*—*The term*
12 *‘workforce framework’ means a common taxonomy*
13 *and lexicon for any given domain that includes the*
14 *building blocks of tasks, knowledge, or skills that can*
15 *be structured to form work roles or competency*
16 *areas.”.*

17 (b) *EXPANSION OF FUNCTIONS OF DIRECTOR OF NA-*
18 *TIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY TO*
19 *INCLUDE WORKFORCE FRAMEWORKS FOR CRITICAL AND*
20 *EMERGING TECHNOLOGIES.*—Section 2(b) of *such Act (15*
21 *U.S.C. 272(b)) is amended—*

22 (1) *in paragraph (12), by striking “; and” and*
23 *inserting a semicolon;*

24 (2) *in paragraph (13), by striking the period at*
25 *the end and inserting “; and”; and*

1 (3) by adding at the end the following:

2 “(14)(A) to develop, maintain, and provide in-
3 dustry, government, research, nonprofit, labor organi-
4 zations, and educational institutions with workforce
5 frameworks for critical and emerging technologies and
6 other science, technology, engineering, and mathe-
7 matics domains for the purpose of bolstering scientific
8 and technical education, training, and workforce de-
9 velopment;

10 “(B) at least once every 3 years—

11 “(i) to determine if an update to any work-
12 force framework, or its components or associated
13 materials, including work roles or competency
14 areas, provided pursuant to subparagraph (A)
15 are appropriate; and

16 “(ii) if the Director determines it is appro-
17 priate under clause (i), to update such frame-
18 works and components;

19 “(C) consider including in all workforce frame-
20 works, or associated materials—

21 “(i) relevant professional skills or employ-
22 ability skills;

23 “(ii) relevant support or operations work
24 roles and competency areas such as administra-
25 tion and finance, law and policy, ethics, privacy,

1 *human resources, information technology, oper-*
2 *ational technology, supply chain security, and*
3 *acquisition and procurement;*

4 “(iii) information that promotes the dis-

5 *covery of careers in critical and emerging tech-*
6 *nologies and the multiple career pathways for*
7 *learners from a variety of backgrounds, includ-*
8 *ing individuals with nontechnical or other non-*
9 *traditional backgrounds and education; and*

10 “(iv) information for how individuals can

11 *acquire relevant credentials (e.g., academic de-*
12 *grees, certificates, certifications, etc.) that qualify*
13 *individuals for employment and career advance-*
14 *ment;*

15 “(D) consult, as the Director considers appro-

16 *priate, with Federal agencies, industry, State, local,*
17 *Tribal, and territorial government, nonprofit, labor*
18 *organizations, research, and academic institutions in*
19 *the development of workforce frameworks, or associ-*
20 *ated materials;*

21 “(E) to produce resources in multiple languages

22 *to support global adoption of the frameworks provided*
23 *pursuant to subparagraph (A); and*

24 “(F) after each determination under subpara-

25 *graph (B), to submit to Congress a report on such de-*

1 *termination and any plans to review and update any*
2 *workforce frameworks under this paragraph.”.*

3 *(c) NICE WORKFORCE FRAMEWORK FOR CYBERSECURITY UPDATE.—*
4

5 *(1) REPORT ON UPDATES.—*

6 *(A) IN GENERAL.—Not later than 180 days*
7 *after the date of the enactment of this Act, and*
8 *subsequently pursuant to paragraph (14)(F) of*
9 *section (2)(b) of the National Institute of Stand-*
10 *ards and Technology Act (15 U.S.C. 272(b)), as*
11 *added by subsection (b) of this section, the Direc-*
12 *tor of the National Institute of Standards and*
13 *Technology shall submit to Congress a report*
14 *that describes the process for ongoing review and*
15 *updates to the National Initiative for Cybersecu-*
16 *rity Education Workforce Framework for Cyber-*
17 *security (NIST Special Publication 800–181), or*
18 *a successor framework.*

19 *(B) REQUIREMENTS.—Each report sub-*
20 *mitted pursuant to subparagraph (A) shall—*

21 *(i) summarize proposed changes to the*
22 *framework;*

23 *(ii) identify, with regard to the work*
24 *roles, tasks, knowledge, and skills included*
25 *in the framework, how industry, academia,*

1 labor organizations, and relevant govern-
2 ment agencies are consulted in the update;
3 and

4 (iii) describe—

5 (I) the ongoing process and
6 timeline for updating the framework;
7 and

8 (II) the incorporation of any ad-
9 ditional work roles or competency
10 areas in domains such as administra-
11 tion and finance, law and policy, eth-
12 ics, privacy, human resources, infor-
13 mation technology, operational tech-
14 nology, supply chain security, and ac-
15 quisition and procurement.

16 (2) *REPORT ON APPLICATION AND USE OF NICE*
17 *FRAMEWORK.*—Not later than 3 years after the date
18 of the enactment of this Act and not less frequently
19 than once every 3 years thereafter for 9 years, the Di-
20 rector shall, in consultation with industry, govern-
21 ment, nonprofit, labor organizations, research, and
22 academic institutions, submit to Congress a report
23 that identifies—

24 (A) applications and uses of the framework
25 described in paragraph (1)(A) in practice;

1 (B) any guidance that the program office of
2 the National Initiative for Cybersecurity Edu-
3 cation provides to increase adoption by employ-
4 ers and education and training providers of the
5 work roles and competency areas for individuals
6 who perform cybersecurity work at all pro-
7 ficiency levels;

8 (C) available information regarding em-
9 ployer and education and training provider use
10 of the framework;

11 (D) an assessment of the use and effective-
12 ness of the framework by and for individuals
13 with nontraditional backgrounds or education,
14 especially individuals making a career change or
15 not pursuing a bachelor's degree or higher; and

16 (E) any additional actions taken by the Di-
17 rector to increase the use of the framework.

18 (3) *CYBERSECURITY CAREER EXPLORATION RE-*
19 *SOURCES.*—The Director, acting through the National
20 Initiative for Cybersecurity Education, shall dissemi-
21 nate cybersecurity career resources for all age groups,
22 including kindergarten through secondary and post-
23 secondary education and adult workers.

24 (d) *ADDITIONAL WORKFORCE FRAMEWORKS.*—

1 (1) *FRAMEWORK ASSESSMENT.*—Not later than
2 180 days after the date of the enactment of this Act,
3 the Director shall assess the need for additional work-
4 force frameworks for critical and emerging tech-
5 nologies, such as quantum information science.

6 (2) *DEVELOPMENT OF ADDITIONAL FRAME-*
7 *WORKS.*—

8 (A) *IN GENERAL.*—The Director shall de-
9 velop and publish a workforce framework for
10 each additional workforce framework that the
11 Director determines is needed pursuant to an as-
12 sessment carried out pursuant to paragraph (1).

13 (B) *REQUIRED AI FRAMEWORK.*—Notwith-
14 standing paragraph (1) and subparagraph (A)
15 of this paragraph, not less than 540 days after
16 the date of the enactment of this Act, the Direc-
17 tor shall develop and publish a workforce frame-
18 work, workforce categories, work roles, and com-
19 petency areas for artificial intelligence.

20 (3) *MODEL.*—In developing a workforce frame-
21 work under paragraph (2), the Director may use the
22 Playbook for Workforce Frameworks developed by the
23 National Initiative for Cybersecurity Education that
24 is modeled after the National Initiative for Cybersecu-
25 rity Education Workforce Framework for Cybersecu-

1 *riety (NIST Special Publication 800–181), or a suc-*
2 *cessor framework.*

3 (4) *FRAMEWORK COMPONENTS.—Each frame-*
4 *work developed pursuant to paragraph (2) shall in-*
5 *clude relevant support or operations work roles and*
6 *competency areas such as administration and fi-*
7 *nance, law and policy, ethics, privacy, human re-*
8 *sources, information technology, operational tech-*
9 *nology, supply chain security, and acquisition and*
10 *procurement, as the Director considers appropriate,*
11 *in alignment with paragraph (14)(C) of section 2(b)*
12 *of the National Institute of Standards and Technology*
13 *Act (15 U.S.C. 272(b)), as added by subsection (b).*

14 (5) *PROFESSIONAL SKILLS REQUIRED.—Each*
15 *framework developed pursuant to paragraph (2) shall*
16 *include professional skills or employability skills, as*
17 *the Director considers appropriate, in alignment with*
18 *paragraph (14)(C) of section 2(b) of the National In-*
19 *stitute of Standards and Technology Act (15 U.S.C.*
20 *272(b)), as added by subsection (b).*

21 (6) *NONTRADITIONAL BACKGROUNDS.—Each*
22 *framework developed under paragraph (2), or mate-*
23 *rials associated with each framework, shall include*
24 *information for how individuals with nontechnical or*
25 *other nontraditional backgrounds and education may*

1 *utilize their skills for such frameworks' roles and*
2 *tasks, in alignment with paragraph (14)(D) of section*
3 *2(b) of the such Act (15 U.S.C. 272(b)(14)(D)), as so*
4 *added.*

5 (7) *UPDATES.—The Director shall update each*
6 *framework developed under paragraph (2) in accord-*
7 *ance with subparagraph (B) of paragraph (14) of sec-*
8 *tion 2(b) of the National Institute of Standards and*
9 *Technology Act (15 U.S.C. 272(b)), as added by sub-*
10 *section (b) of this section, and submit to Congress re-*
11 *ports in accordance with subparagraph (F) of such*
12 *paragraph.*

13 **SEC. 18. RESTRICTIONS ON AWARDS OR SCHOLARSHIPS TO**
14 **CERTAIN INSTITUTIONS OR RECIPIENTS.**

15 *The Director may not award any funds or initiate any*
16 *programs authorized under or described in this Act to an*
17 *elementary or secondary education institution, an institu-*
18 *tion of higher education, as defined in section 102 of the*
19 *Higher Education Act of 1965 (20 U.S.C. 1002), a non-*
20 *profit entity related to or affiliated with any such institu-*
21 *tion, a nonprofit entity that engages in established cur-*
22 *riculum-related clinical training of students registered at*
23 *any such institution, a nonprofit research organization, or*
24 *a governmental research organization, if such recipient has*
25 *been found to be in violation of title VI of the Civil Rights*

- 1 *Act of 1964 (42 U.S.C. 2000d et seq.) due to discrimination*
- 2 *on the basis of shared ancestry or ethnic characteristics on*
- 3 *or after January 1, 2020.*

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2^D SESSION

S. 4394

A BILL

To support National Science Foundation education and professional development relating to artificial intelligence.

AUGUST 1, 2024

Reported with an amendment