

**MEMORANDUM OF UNDERSTANDING  
BETWEEN  
THE DEPARTMENT OF ENERGY OF THE UNITED STATES OF AMERICA  
AND  
THE ROYAL MINISTRY OF EDUCATION AND RESEARCH OF  
THE KINGDOM OF NORWAY  
ON  
COLLABORATION ON ARTIFICIAL INTELLIGENCE AND ITS APPLICATIONS  
TO SCIENCE, CLIMATE ENERGY AND HEALTH**

The Department of Energy of the United States of America and the Royal Ministry of Education and Research of the Kingdom of Norway (hereinafter referred to individually as the “Participant” and collectively as the “Participants”):

**Seeking** through this Memorandum of Understanding (hereinafter referred to as the “Memorandum”) to enhance relations between their respective countries in the area of Artificial Intelligence (AI) and research supporting the development of AI, that may include fundamental and applied research, development of methods and technologies applied on relevant big data sets, interplay with the public discourse and society, and ethical and regulatory frameworks at the relevant national and international levels;

**Determined** to further develop cooperation in the promotion of scientific and technological activities in a broad range of fields, with impacts on science, energy, climate and health, for the benefit of both Participants' countries and of the international community;

**Expressing** support for research and development and innovative solutions that benefit society, demonstrate respect for all stakeholders, and are rooted in integrity demonstrated by a shared commitment to foundational scientific values and principles such as reciprocity, meritocracy, openness, and transparency;

**Noting** the Agreement on Science and Technology Cooperation between the Government of The United States of America and the Government of The Kingdom of Norway signed at Washington on December 9, 2005 (the “Science and Technology Agreement”); and

**Noting** the existing and advanced cooperation between the Participants on topics increasingly associated with AI and big data, and the potential for technology development and innovation,

Have reached the following understandings:

**1. Guiding Principles**

The Participants share a desire to lead the way in researching, developing and using responsible and trustworthy AI based on ethical principles and with respect for individual rights and freedoms, including with regard to privacy and data protection. Ethical principles include but are not limited to human agency and oversight; technical robustness and safety; privacy and data governance; transparency; diversity, non-discrimination and fairness; societal and environmental well-being; and accountability. For processing of data about or affecting humans, the Participants intend for their collaboration to respect the rights to human dignity, integrity, privacy and protection of personal data. In their collaboration under this

Memorandum, the Participants may actively embed ethics by design and privacy by design, for instance by promoting the use of fair algorithms to mitigate human bias and discrimination.

## **2. Scope**

Collaboration under this Memorandum, which in all instances is intended to be conducted in line with the guiding principles described in Section 1 of this Memorandum, may include, but is not limited to, the following fields:

- a. Information exchange in basic and applied AI research, good study programmes and competence building through courses and further education programmes at all levels.
- b. Development of world-class computing power for AI research and applications, including advanced alternative AI accelerator technologies, quantum computing, neuromorphic computing and other emerging technologies.
- c. Facilitation of data access for AI development in selected areas within and across industries and sectors through fast, robust, and state-of-the-art secure networks.

## **3. Forms of Cooperative activities**

3.1. Cooperative activities under this Memorandum may be carried out by:

- a. The Participants
- or
- b. Laboratories, research institutions, universities, or contractors of the Participants.

3.2 Cooperative activities may include:

- a. Meetings between the Participants with the aim of exchanging views on overall AI research, market and technology perspectives, and jointly identifying mechanisms to foster productive and future-oriented partnerships between the public and private sectors of the United States and Norway in the field of AI and big data;
- b. Meetings and projects between firms (public and private), or between firms and laboratories, research institutions and academia aimed at identifying areas of common interest, and to explore and engage in cooperative activities to promote the acceleration of demonstration and use of state-of-the-art technology and research results as well as to enhance industrial relevance of scientific activities;
- c. Meetings and projects between various research Institutions, laboratories or academia to discuss and exchange publicly available information on scientific and technological aspects of general or specific AI and big data subjects, and to identify research and development projects and programs that may be usefully undertaken on a cooperative basis through separate written arrangements;
- d. Visits and exchanges of scientists, technical personnel and other experts on general or specific AI and big data subjects;

- e. Exchange of technologies and methods facilitating decentralized fundamental and applied research on big data;
- f. Joint courses and further education programmes in AI at all levels; and
- g. Meetings and/or dialogues to discuss aspects of reliable AI, ethical AI and regulatory mechanisms, privacy issues, and legal frameworks underlying the use of big data as relevant for each Participant.

#### **4. Management**

The Participants intend to establish a bilateral Working Group on Educational, Scientific and Technological Cooperation within AI to coordinate actions related to the implementation of this Memorandum. The functions of the Working Group may include:

- a. Identifying priority areas of educational, scientific and technological cooperation;
- b. Proposing a work programme with recommendations to the Participants on the implementation of this Memorandum, including proposals for cooperative activities;
- c. Assessing existing initiatives to promote and expand cooperation in accordance with the provisions hereof;
- d. Analyzing the results of cooperation carried out under this Memorandum;
- e. Exchanging information and experience on matters of educational, scientific and technological policy;
- f. Discussing other matters related to the implementation of this Memorandum; and
- g. Providing an evaluation report regarding the past year's activities and accomplishments.

Meetings of the Working Group are intended to be held alternately in the United States of America and the Kingdom of Norway, or in such other places or modalities as the Participants may jointly decide.

#### **5. Funding**

5.1 Unless jointly approved in writing, any cost arising from collaboration between the Participants is expected to be borne by the Participant that incurs them.

5.2 Collaboration under this Memorandum is subject to the availability of appropriated funds, technical resources, and personnel.

## **6. General Provisions**

6.1 Each Participant is to conduct the activities provided for in this Memorandum in accordance with applicable laws, regulations, and policies to which it is subject, including with regard to data protection and export control, and applicable international agreements to which its Government is party.

6.2 Any questions concerning the interpretation or application of this Memorandum may be addressed by consultations between the Participants.

6.3 The Participants do not anticipate the generation of intellectual property arising from activities under this Memorandum, or the exchange of business-confidential information. If the Participants decide that a particular activity may lead to the creation of intellectual property or the exchange of business-confidential information, they intend to consult with each other and make appropriate written arrangements for the protection and allocation of such intellectual property and the protection of such business-proprietary information. These may include arrangements subject to the Science and Technology Agreement.

6.4 This Memorandum does not create any legally binding obligations between the Participants.

## **7. Duration, Modification and Discontinuation**

7.1 Activities under this Memorandum may commence upon signature by the Participants. The Participants intend to review their cooperation under this Memorandum every five years.

7.2 The Participants may discontinue collaboration under this Memorandum at any time by mutual written decision. Alternatively, a Participant that wishes to discontinue its participation in this Memorandum may do so at any time and should endeavor to provide at least ninety (90) days written notice to the other Participant. Unless otherwise specified in writing, the Participants understand that cooperative activities not completed upon the discontinuation of this Memorandum may be continued to their completion under the provisions of this Memorandum.

7.3 This Memorandum may be modified at any time by mutual written decision of the Participants.

Signed in duplicate in the English language.

FOR THE DEPARTMENT OF ENERGY  
OF THE UNITED STATES OF  
AMERICA:

FOR THE ROYAL MINISTRY OF  
EDUCATION AND RESEARCH OF THE  
KINGDOM OF NORWAY:

Geraldine Buchanan

ABB

Date: March 8, 2022

Date: 20/4-2022

Place: Eugene OR USA

Place: Oslo, Norway

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KINGDOM OF NORWAY:



Date: 20/4-2022

Place: Oslo, Norway

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OF THE UNITED STATES OF  
AMERICA:



Date: March 8, 2022

Place: Eugene OR USA