

ANNEX
BETWEEN
THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
GEORGE C. MARSHALL SPACE FLIGHT CENTER
AND
INTERNATIONAL BUSINESS MACHINES CORPORATION THROUGH ITS
THOMAS J. (T.J.) WATSON RESEARCH CENTER
UNDER SPACE ACT UMBRELLA AGREEMENT
NO. SAA8-2233097, DATED _____
ANNEX NUMBER SAA8-2233097.1

ARTICLE 1. PURPOSE

This Annex shall be for the purpose of research and collaboration between International Business Machines Corporation through its Thomas J. (T.J.) Watson Research Center (hereinafter "IBM") and the National Aeronautics and Space Administration (NASA) to address the need for data discovery, access, and use of high-value NASA science datasets. Under this annex, IBM will seek to develop a new large-scale artificial intelligence (AI) foundation model (AI Model) to perform multiple natural language processing tasks. IBM will seek to train that AI Model on science data provided by NASA and on other publicly available data as appropriate. Furthermore, IBM and NASA will collaborate to evaluate the performance of the developed AI Model on tasks relevant to NASA and the scientific community. It is the intention of IBM and NASA to publicize the collaboration and its results, to author scientific publications regarding the AI Model and the evaluation results, and to release the resulting AI Model and any evaluation criteria and methods into an open source community.

The legal authority for this Annex, consistent with the Umbrella Agreement, is in accordance with the Space Act, Other Transactions Authority (OTA), 51 U.S.C. § 20113(e).

ARTICLE 2. RESPONSIBILITIES

A. NASA MSFC will use reasonable efforts to:

1. Provide access to mutually agreed upon science datasets in the earth and geosciences domain as needed for IBM to develop and train an AI Model.
2. Provide data stewardship expertise to ensure the quality and fitness of the science datasets for the intended use.
3. Refrain from providing access to science datasets that are (1) not publicly releasable and/or (2) subject to export control.
4. Work with IBM to establish evaluation criteria and test cases to assess the performance of the preliminary AI Model.
5. Work with IBM to conduct outreach and promotion activities regarding the work accomplished under this Annex.

6. Ensure continued availability of science datasets or other evaluation data necessary for public validation of results described in scientific publications (if any) related to work under this Annex.

B. IBM will use reasonable efforts to:

1. Develop and train a preliminary AI Model based on the science datasets provided by NASA, and other publicly available data selected at IBM's discretion, to perform natural language processing tasks, including but not limited to keyword classification and question answering.
2. Work with NASA to establish evaluation criteria and test cases to assess the performance of the preliminary AI Model.
3. Conduct the performance evaluation of the AI Model and incorporate any improvements from the assessment.
4. Work with NASA to conduct outreach and promotion activities regarding the work accomplished under this Annex.
5. Deliver the final AI Model and provide a final report to NASA containing a description of both the methods used for training the AI Model under this Annex and the methods used for conducting the performance evaluation of such AI Model including identification of any open source materials necessary for the training and performance evaluation.

ARTICLE 3. SCHEDULE AND MILESTONES

The planned major milestones for the activities for this Annex defined in the "Responsibilities" Article are as follows:

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| 1. NASA will provide access to the science datasets | Within one (1) week of the Effective Date and continuing until Annex ends |
| 2. NASA and IBM will establish mutually agreeable evaluation criteria and test cases for the AI Model | Within three (3) months of the Effective Date |
| 3. IBM will complete preliminary development of AI model | Within six (6) months of the Effective Date |
| 4. Parties will jointly participate in outreach activities to share the impact and results from the AI Model | Upon completion of Milestone 3 and continuing until Annex ends |
| 5. IBM will deliver the final AI Model and provide the final report to NASA | Within twenty-four (24) months of the Effective Date |

ARTICLE 4. INTELLECTUAL PROPERTY RIGHTS - DATA RIGHTS

A. Data produced under this Annex which is subject to paragraph C. of the Intellectual Property Rights - Data Rights Article of the Umbrella Agreement will be protected for the period of two years.

B. Under paragraph H. of the Intellectual Property Rights - Data Rights Article of the Umbrella Agreement, Disclosing Party provides the following Data to Receiving Party. The lists below may not be comprehensive, are subject to change, and do not supersede any restrictive notice on the Data provided.

1. Background Data:

None

2. Third Party Proprietary Data:

None

3. Controlled Government Data:

None

4. The following software and related Data will be provided to Partner under a separate Software Usage Agreement:

None

ARTICLE 5. TERM OF ANNEX

This Annex becomes effective upon the date of the last signature below ("Effective Date") and shall remain in effect until the completion of all obligations of both Parties hereto, or two years from the Effective Date, whichever comes first, unless such term exceeds the duration of the Umbrella Agreement. The term of this Annex shall not exceed the term of the Umbrella Agreement. The Annex automatically expires upon the expiration of the Umbrella Agreement.

ARTICLE 6. RIGHT TO TERMINATE

Either Party may unilaterally terminate this Annex by providing thirty (30) calendar days written notice to the other Party.

ARTICLE 7. POINTS OF CONTACT

The following personnel are designated as the Points of Contact between the Parties in the performance of this Annex.

Technical Points of Contact

NASA George C. Marshall Space Flight
Center

David Hood
IMPACT Associate Project Manager
Mail Suite: ST14

International Business Machines
Corporation

through its Thomas J. (T.J.) Watson
Research Center
Dr. Raghu Ganti

Marshall Space Flight Center, AL 35812
Phone: 256-961-7482
david.w.hood@nasa.gov

Principal Research Staff Member
1101 Kitchawan Road
Yorktown Heights, NY 10598-0001
Phone: 914-945-2164
rganti@us.ibm.com

ARTICLE 8. MODIFICATIONS

Any modification to this Annex shall be executed, in writing, and signed by an authorized representative of NASA and the Partner. Modification of an Annex does not modify the terms of the Umbrella Agreement.

ARTICLE 9. SIGNATORY AUTHORITY

The signatories to this Annex covenant and warrant that they have authority to execute this Annex. By signing below, the undersigned agrees to the above terms and conditions.

NATIONAL AERONAUTICS AND
SPACE ADMINISTRATION
GEORGE C. MARSHALL SPACE
FLIGHT CENTER

INTERNATIONAL BUSINESS
MACHINES CORPORATION
THROUGH ITS THOMAS J. (T.J.)
WATSON RESEARCH CENTER

BY: _____
David M. Burns, Ph.D.
Manager, Science and Technology
Office

BY: _____
Glenn Holmes
Director - Research Government
Business Development

DATE: _____

DATE: _____