

**MEMORANDUM OF UNDERSTANDING FOR PROMOTING THE JOINT DEVELOPMENT OF ARTIFICIAL INTELLIGENCE AND SUPERCOMPUTING RESOURCES IN THE CONTEXT OF COVID-19 RELATED RESEARCH**

**BETWEEN**

**CLAIRE** (Confederation of Laboratories for Artificial Intelligence Research in Europe) who started a task force on Artificial Intelligence and COVID-19.

and

**Associazione Big Data**

and

**CINI** (Consorzio Interuniversitario Nazionale per Informatica - Italian National Inter-University Consortium for Informatics)

**THE PARTIES AGREE AS FOLLOWS**

**WHEREAS**

**EU perspective about High Performance Computing**

In the European landscape, the access to HPC infrastructure for research projects on COVID-19 is guaranteed by several national and pan-European initiatives, such as the PRACE COVID-19: fast access to HPC supercomputing facilities. PRACE, which includes participation by the major EU data centres, grants access to affiliated data centres on a peer-review basis (<https://prace-ri.eu>). These programs grant access to HPC resources for COVID-19 research along with the traditional HPC provisioning model. However they are not always matching the AI community needs. This MoU aims at establishing a common understanding of how the parties will work to bridge this gap by experimenting with novel provisioning models of HPC resources for AI workloads. Methodologically, this is expected to happen by way of a co-regulatory approach among partners on the methods, the tools and the rules for accessing computer resources. The

co-regulatory approach is based on three cornerstones: infrastructure and their management, methods and tools for high-performance computing, and theory and methods of Artificial Intelligence.

## Art 1 – MoU Subjects

### a. CLAIRE

CLAIRE, the Confederation of Laboratories for Artificial Intelligence Research in Europe, has formed the world's largest research network in AI, with the goal of promoting and creating excellence in human-centred AI, across all areas of AI and across all of Europe. In March 2020, CLAIRE launched a volunteer effort to help tackle the pandemic and put into place a task force to coordinate the effort and the volunteer experts supporting it. This task force collected information on the various initiatives on leveraging AI techniques in the context of COVID-19 and supported the development of new projects, connecting the European network of AI experts together with health institutions and governments. By the end of March, the task force had enrolled 150 volunteers, covering the full spectrum of AI methods, tools and technologies. The task force organized the effort of the researchers in 11 groups each managed by a topic coordinator.

One of these groups, T7, managed by Marco Aldinucci, is the “Medical Image Analysis” group. T7 started an activity on benchmarking and reproducibility of the state-of-the-art methods for COVID-19 diagnosis via deep neural networks being used on X-rays/CT-scans. The openly available deep neural networks and datasets will be collected and cross-validated to compare them across a common baseline. This task will require substantial human and computational effort for both training and inference of the Cartesian product of networks, datasets and network parameters. A non-trivial but enabling aspect of this work will be designing and experimenting tools, making it possible to bring AI workloads to supercomputers and to enable AI experts to efficiently use large-scale computing platforms, which are not traditionally designed for AI workloads.

### b. CINI

CINI (Italian National Inter-University Consortium for Informatics), a consortium of 47 public Italian universities, is today the main point of reference for the national academic research in the fields of Computer Engineering, Computer Science, and Information Technologies. CINI aims at providing added value to the member Universities, the Italian production system, the Italian Public Administration, and the overall country, being the representative of the almost whole Italian Academic Informatics Community.



Established in 6.12.1989, CINI is under the supervision of the competent Italian Ministry for University and Research.

CINI Promoting and coordinating scientific activities of research and technological transfer, both basic and applicative, in several fields of Computer Science and Computer Engineering, and including specific National Laboratories, focused on: Artificial Intelligence and Intelligent Systems (AIIS), Assistive Technologies (AsTech), Big Data, Cybersecurity, Digital Health, Embedded Systems & Smart Manufacturing, Formal Methods and Algorithmics for Life Sciences (Infolife), HPC: Key Technologies and tools, ICT Skills, Training, and Certification (CFC), Informatica & Società, Informatica e Scuola; Smart Cities and Communities Tecnologie Multimediali (ITeM).

#### **c. Associazione Big Data**

The “Associazione Big Data” is an organization that was set up to interconnect and jointly exploit the knowledge, capacities, research and innovation potentials of the stakeholders community involved in supercomputing and big data production and management to leverage the effects of actions and investments made so far and to maximize their impacts, locally but also at national, EU and international levels. The “Associazione Big Data” aims at the sharing and exploiting of existing results, knowledge, capacities, research and innovation initiatives and frameworks at the cooperation between public and private entities, maximizing the leverage effects of R&I public and private investments.

#### **Art. 2 - Purpose of the MoU**

The Parties, according to their aggregator and knowledge sharing functions, with this MoU agree to enable AI experts and all scientists working on COVID-19 related subjects to efficiently use supercomputers fostering the research on AI running AI workloads (also with medical data) on large HPC platforms not traditionally conceived for AI workloads and all the resources that the Parties will make available to each other as indicated in art. 4

This experience will promote research on AI as well as on novel compute provisioning and data sharing models, and the design of new tools to bring AI workload into supercomputers, which access is aggregated by the Associazione Big Data partnership members.



### **Art 3 – People in charge of the Agreement**

For the achievement of the purposes referred to in Article 2 above, the execution of this MoU is delegated to a coordination structure consisting of a representative for each of the Parties. This structure called the Coordination Agreement Board will determine the organizational and implementation procedures of this Agreement.

These organizational procedures must encourage the maximum involvement and participation of the national Research community and the Academy.

The following are the persons in charge of the agreement.

- CLAIRE: Prof. Gianluca Bontempi, Université Libre de Bruxelles
- Associazione Big Data: Prof. Fabio Fava, University of Bologna
- CINI: Prof. Ernesto Damiani, Presidente di CINI

### **Art. 4 – Scientific community**

All the researchers of the CLAIRE COVID-19 task force and CINI-affiliated universities can apply for participation. The applications authorized by their organizations before access will be evaluated by a panel of experts designated by the Coordination Agreement Board.

### **Art. 5 – Rights of Access and Acknowledgement**

The principal investigators can communicate the inclusion of other researchers as collaborators and partners, but it is not permitted to sublicense or to reassign the rights of access. The granted principal investigators have to produce a short report about the outcome of the research and have to acknowledge the Associazione Big Data for the grant.

### **Art 6 Resources**

It is up to each Party, or associated member of each Party, to determine its availability of resources that can be referred to as "common resources" for the purposes of the MoU and the access criteria associated with these resources.



All resources (computing, storage, management and analysis software, connectivity network, storage and data access systems) remain the property of the Parties, or associated member of the Parties, who own them. Consequently, their operation, management and determination of use policies remain the responsibility of the respective governing bodies of the resources owner.

#### **Art. 7 - Defects, Damages and Limitations of Liability**

The Parties use "common resources" AS-IS and all warranties, conditions or other terms are expressly excluded, whether expressed, implied or mandatory, including - without limitations - guarantees, conditions or other terms related to marketability, suitability for a specific purpose, design, condition, capacity, performance, title and non-infringement. The parties do not guarantee that the access to supercomputing resources will operate without interruption or error, or that errors will be corrected.

In no event Parties will be liable each towards the Others , regardless of the theory of liability or whether related to or arising from this MoU : (i) indirect, incidental, exemplary, special or consequential damages; (ii) loss or corruption of data or interruption or loss of activity; or (iii) loss of revenue, profits, goodwill or expected sales or savings.

#### **Art. 8 - Security**

The Parties adopt best practices standards to guarantee the availability, integrity and confidentiality of any data processed and managed during the execution of the applications research.

#### **Art. 9 - Confidentiality**

The granted principal investigators have to assume the obligation to keep the data and information confidential, including that which passes through the data processing equipment, which is supplied to her or him and in any case aware, also through the use of the contract, of not to disclose them in any way and in any form, not to use them in any capacity for purposes other than those strictly necessary for the execution of the MoU and not to make them the object of communication or transmission.

In the event of non-compliance with the obligations indicated above, each Party may declare the MoU terminated, with seven days' notice.



### Art. 10 – Privacy

In accordance with this MoU, the Parties carry out processing of personal data relating to the projects indicated in the whereas and in art. 2 of this document.

The parties agree to sign a Privacy Agreement in order to regulate charges and responsibilities in compliance with Regulation (EU) of the Parliament and of the European Council n. 2016/679 and any other applicable legislation.

### Art 11 - Duration of the Agreement

The Agreement will last until 30 June 2023.

### Art 12 – Disputes

The Parties agree to define amicably any dispute that may arise from the interpretation or execution of this agreement. In cases where the agreement cannot be reached in this way, the parties indicate the exclusive court of Bologna as the place of jurisdiction for any dispute concerning the validity, interpretation, execution or termination of this agreement.

Turin, 14 July 2020

CLAIRE

Gianluca

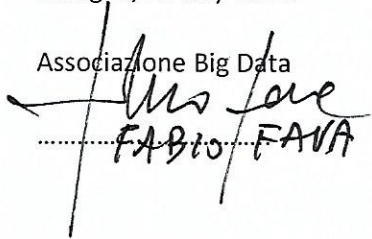
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Bologna, 14 July 2020

Associazione Big Data

FABIO FAVA



Rome, 14 July 2020

CINI

ERNESTO DAMIANI

