

കേരളം കേരल KERALA

Memorandum of Understanding

EC 791333

THIS MEMORANDUM OF UNDERSTANDING is entered on the 31st day of March 2023

Between

National Institute of Technology Calicut, an Institution of National Importance, created by Act 59 of 1961 Indian Parliament and a premier technical university, (herein after referred to as NITC), having its campus in Calicut, Kerala-673601, India and represented by its Director.

And

Sree Chitra Tirunal Institute for Medical Sciences and Technology, an Institution of National Importance established by Central Act 52 of 1980, under the Department of Science and Technology, Govt. of India (herein after referred to as SCTIMST which expression shall include its successors and permitted assigns), having its office at Trivandrum, Kerala- 659 011, and represented by its Director.

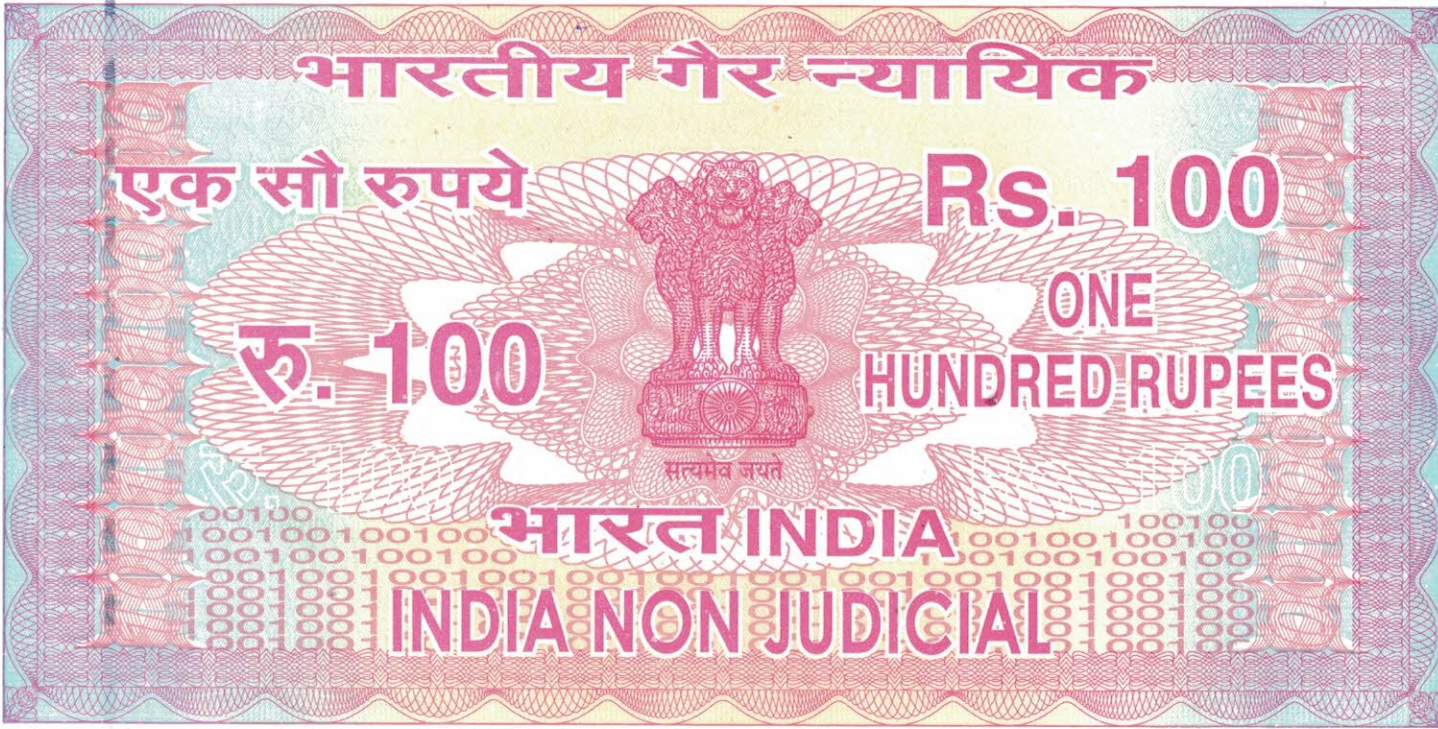
(Both hereinafter referred to as the Parties collectively, or Party individually)



[Signature]
Chairperson, Centre for Industry Institutional Relations (CIIR)
National Institute of Technology Calicut
Calicut, Kerala- 673601, India

No. 28406 Rs. 100 to 21213021 chathamangalam
Name Director NIT Calicut
Date 27.3.2023
CHATHAMANGALAM
S.P. VENDER
V. PUSHPANGATHAN
[Signature]
Sangay Behar
15/5/23





കേരളം KERALA

EC 791334

WHEREAS, National Institute of Technology Calicut, NITC (P.O.) PIN- 673601, Kozhikode, formerly known as Calicut Regional Engineering College, established in 1961, (herein after referred to as NIT CALICUT), has been conferred with the status of Institute of National importance under National Institute of Technology Act in 2007. The institute, through its various activities, takes efforts for advancement of learning and dissemination of knowledge in various front-line areas of importance for the nation. In that pursuit, NIT CALICUT would like to link with similar National Institutes and Research Organizations and collaborate in applied research and consultancy in Science, Technology, Engineering and Management and also promote academic and professional excellence of personnel, including the students.

WHEREAS, SCTIMST is an Institution of National Importance under the Department of Science and Technology, Govt. of India. The joint culture of medicine and technology pioneered by its founders more than three decades ago, has come of age and gained unprecedented acceptance in India. The institute has the status of a university and offers excellent research and training facilities.

WHEREAS NITC has experience in research activities employing recent techniques of signal processing methods in signals of EEG and MRI, AI algorithms in healthcare, development of assistive devices, and has also developed numerous algorithms with the objective to help the clinicians in their diagnosis.

No. 28407 Rs. 100 Kozhikode Chathamangalam
 Name..... Director NIT Calicut
 Date..... 27.3.2023
 CHATHAMANGALAM
 S RO VENDER
 V. PUSHPANGATHAN



WHEREAS SCTIMST has experience in cognitive testing and imaging investigations in adults and has expertise and research interest in medical imaging, software used in structural MRI, functional MRI (fMRI), diffusion tensor imaging (DTI), advanced neuro-imaging MRI etc as well as medical device development and has generated good amount of clinical data.

WHEREAS both parties have held discussions and recognizing the other parties expertise and research interest, believe that there exists a great scope for collaborating and working together in research areas of common interest such as EEG signal processing, feature extraction, Neuropsychological analysis, Functional MRI post processing, Memory and emotion processing in neurodegenerative diseases etc.

WHEREAS the two Parties, agree to take part in the joint research initiative viz “Investigations on the alteration in brain dynamics during progression of Alzheimer Disease (AD) from Mild Cognitive impairment (MCI) under resting and cognitive task conditions using complex network analysis”.

NOW, THEREFORE, in consideration of the mutual promises made herein and of good and valuable consideration, the receipt and sufficiency of which both SCTIMST and NITC hereby acknowledge, SCTIMST and NITC hereby agree to the following protocols governing their collaboration in the said research project and to sign a Memorandum of Understanding (MoU).

ARTICLE-I: SCOPE

The Scope of collaboration on academic and research activities in this Memorandum of Understanding includes the following research project granted by SERB (CRG): “Investigations on the alteration in brain dynamics during progression of Alzheimer Disease (AD) from Mild Cognitive impairment (MCI) under resting and cognitive task conditions using complex network analysis”.



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ARTICLE-II: TERMS OF INTERACTIONS

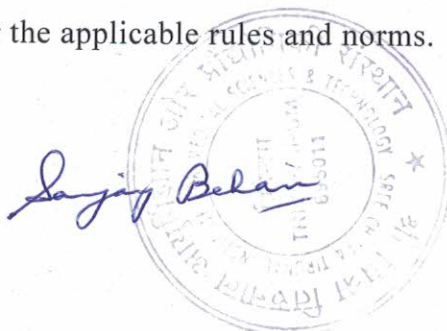
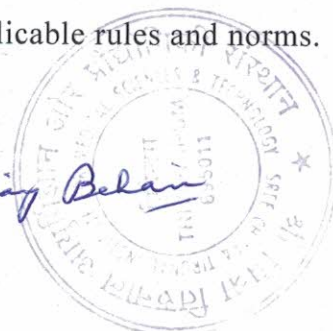
The two parties agree to take part in the joint research initiative as mentioned above in Article I. In this project identified for collaboration, faculty, students and staff from the two Institutes will collaborate in carrying out the research activity as proposed in the project proposal approved by the Institutional Ethics Committee of SCTIMST. The research proposal is developed with the collaborative efforts of the The Cognition & Behavioural Neurology Section (CBNS), Department of Neurology, SCTIMST and Department of Electrical Engineering, NIT Calicut.

The Research Project - Summary:

The changes effected in the properties of the brain network from mild cognitive impairment Alzheimer disease (MCI-AD) progressing to early AD under temporal dynamics, shall be characterized and modelled by NITC and SCTIMST will provide neuropsychological and EEG data of patients with Mild cognitive Impairment, early Alzheimer's disease and healthy individuals under resting and cognitive task conditions to NITC for jointly performing data post processing and assist the Neurologists with a computer aided diagnosis by developing a reliable biomarker.

ARTICLE-III: SHARING OF FACILITIES

- a) NITC and SCTIMST shall discuss and make provisions to share their respective important R&D facilities in order to carry out this research project.
- b) NITC and SCTIMST shall permit sharing facilities in their premises required to carry out the above-mentioned research project, if permissible within the rules governing the two organizations.
- c) NITC and SCTIMST shall provide access to the library facilities to personnel of both the organizations involved in the project as per the applicable rules and norms.

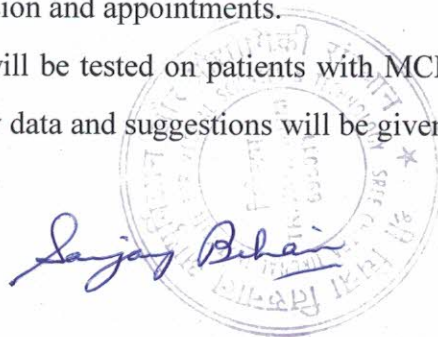
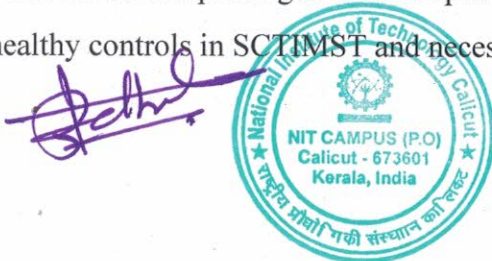
ARTICLE-IV: RESPONSIBILITIES OF EACH PARTY

Responsibilities of NITC

1. NITC proposes to develop reliable and specific biomarkers for MCI and early AD that can positively influence the quality of life of a population vulnerable to Alzheimer's.
2. NITC shall also develop a model network degeneration associated with mild and early Alzheimer's disease and shall be validated based on the data provided by SCTIMST. Multiple iterations of design and development will be done before finalization
3. NITC will also facilitate visits of researchers in SCTIMST to its campus for interactions and to facilitate the research.
4. The faculty and students in NITC related to this research project will visit SCTIMST campus to have discussions and periodic monitoring of the progress of the research. The mutual visits will be done with prior discussion and appointments

Responsibilities of SCTIMST

1. SCTIMST shall participate as a center for collecting clinical samples and will provide Neuropsychological/EEG data of patients to researchers in NITC, which are required to validate the study proposed.
2. SCTIMST will also provide all required support in terms of data and de-identified clinical information which will help in developing the system.
3. SCTIMST will also facilitate visits of researchers in NITC to its campus to see the clinic and the hospital settings to facilitate the research. This will be done without affecting the patient services.
4. The faculty and researchers in SCTIMST related to this research project will visit NITC campus to have discussions and periodic monitoring of the progress of the research. The mutual visits will be done with prior discussion and appointments.
5. Once the initial paradigm is developed it will be tested on patients with MCI, early AD and healthy controls in SCTIMST and necessary data and suggestions will be given to NITC.



ARTICLE-V: EFFECTIVE DATE AND DURATION OF MoU

- a) This MoU shall be effective from the date of the last signature of the parties below.
- b) The duration of the MoU shall be for a period of 3 years from the effective date.
- c) During its tenancy, the MoU may be extended or terminated by a prior notice of not less than three months by either party. However, termination of the MoU will not in any manner affect the interests of the students/faculty/scientists who have been admitted to pursue a programme under this MoU.
- d) The progress of the research will be reviewed periodically and necessary measures will be taken to address the challenges and to take it forward.
- e) If any of the partner institution wishes to terminate the MOU at the end of the stipulated period (3 years) it must notify the other institution not less than three months prior to the expiry of the MOU.

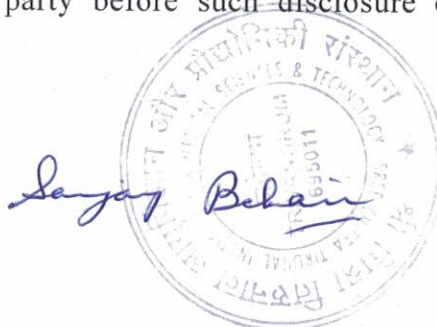
ARTICLE-VI: IPR

Rights regarding publications, patents, royalty, ownership of paradigms/design/product developed etc. under the scope of this MoU shall be jointly shared on a 50:50 basis by the two parties by mutual consent

ARTICLE-VII: CONFIDENTIALITY

During the tenancy of the MoU, both NITC and SCTIMST will maintain strict confidentiality and prevent disclosure of all the confidential information and data exchanged under the scope of this MoU for any purpose other than in accordance with this MoU.

'CONFIDENTIAL INFORMATION' shall mean any proprietary information, data or facts belonging to PARTIES collectively or severally, disclosed by the disclosing party under this agreement or any subsequent agreement, whether in writing, verbal or electronically, irrespective of the medium in which such information is stored, which is marked confidential or with any other words having similar meaning by the disclosing party, or specifically agreed to be kept confidential by the parties, or declared or identified so by the disclosing party before such disclosure or during the discussions.



Confidentiality of **patient related information** will be given prime importance as suggested by the Ethics Committee (IEC) of SCTIMST. No data related to patients will be used out of the purview of this research and all patient identifiers will be masked.

Both NITC and SCTIMST shall bind their respective personnel who come into possession or knowledge of any confidential information not to disclose the same to third parties without written approval of the disclosing party or use such confidential information for any use other than intended under this agreement or projects.

Further, both NITC and SCTIMST shall put in place adequate and reasonable measures to keep and store confidential information secure so as to prevent any unauthorized use.

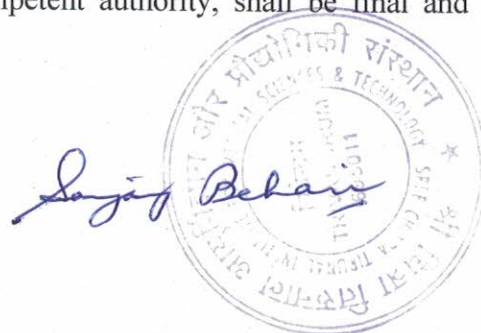
This clause shall survive the termination or expiry of this MOU

ARTICLE-VIII: AMENDMENTS

Any Article or clause of the MoU may be modified or amended by mutual agreement of NITC and SCTIMST. Any amendment or modification to this MoU shall be in writing and signed by both the parties hereto and shall only after such execution be deemed to form part of the MoU.

ARTICLE-IX: RESOLUTION OF DISPUTES


- a) This agreement shall take effect and be construed in accordance with the Laws of India.
- b) If dispute or difference whatsoever arises between Parties in relation to or in connection with this MoU, both the parties shall first try to resolve the dispute/difference amicably between themselves failing which the matter shall be resolved between the heads of the institutes.
- c) In a case such differences or disputes cannot be mutually settled, the matter shall be decided by Arbitration held at Thiruvananthapuram in accordance with the provisions of the Indian Arbitration and Conciliation Act,1996 or the corresponding legislation in force for the time being and the Award made by the competent authority, shall be final and binding on the parties.



ARTICLE-X: MISCELLANEOUS


- a) No failure to exercise and no delay in exercising, on the part of a Party, and right, remedy, power or privilege hereunder shall operate as a waiver thereof, nor shall any single or partial exercise of any right, remedy, power or privilege hereunder preclude any other or further exercise thereof or the exercise of any other right, remedy, power or privilege. The rights, remedies, power and privileges herein provided are cumulative and not exclusive of any right, remedies, powers and privileges provided by law.
- b) After this MoU has been signed, all the preceding understandings/negotiations and the correspondence pertaining to it shall become null and void.

IN WITNESS WHEREOF PARTIES HERE TO HAVE ENTERED INTO THIS AGREEMENT EFFECTIVE AS ON THE DATE AND YEAR FIRST ABOVE WRITTEN



Dr. JOSE MATHEW
31-3-2023
Chairman, Centre for Industry Institutional
Relations (CIIR)

NITC
Chairperson, Centre for Industry Institutional Relations (CIIR)
National Institute of Technology Calicut
Calicut, Kerala- 673601, India





Director
श्री चिरा विरुनाल आयुर्विज्ञान और प्रौद्योगिकी संस्थान
SCTIMST
National Institute for
Medical Sciences and Technology
त्रिवेन्द्रम / Trivandrum-695011

In the presence of the following witnesses:

1)  - **Dr. Shree Lakshmi, M.P**
EED, NITC

1) 
K. Ramesh Babu
MPP

2) 
Prof. Ashok S
EED, NITC.

2) 
Nishal V.P
DCB

Date: **31-03-2023**

Date: