

**TERMS OF REFERENCE FOR THE RESEARCH ASSISTANT &  
RESEARCH ASSISTANT cum PROJECT ASSISTANT FOR RESEARCH AND  
INNOVATION COMMERCIALIZATION (RIC) PROGRAMS**

**FACULTY OF ENGINEERING**

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## **1. BACKGROUND**

The Development of the higher education sector is of central importance to enable Sri Lanka to make the transition from a Lower – Middle Income Country (LMIC) to an Upper Middle – Income Country (UMIC). Recognizing this, the Government of Sri Lanka (GoSL) and the World Bank have agreed to support the higher education sector through a Bank Funded Accelerating Higher Education Expansion and Development (AHEAD) Operation.

## **2. THE OPERATION**

The AHEAD Operation is organized in two components. The first is a Program Component that supports the National Higher Education Development Program. The second is a systems strengthening, capacity building and technical assistance component that will assist GoSL to strengthen the higher education sector and achieve the objectives of the AHEAD program component. This second will also cover monitoring and evaluation, policy analyses, program coordination and communication.

The implementing agency is the Ministry of Higher Education, Technology and Innovation. The University Grants Commission (UGC) will coordinate the activities of the universities. There will be an Operations Monitoring and Support Team (OMST) which will coordinate and support all AHEAD activities between the Ministry of Higher Education, Technology and Innovation, UGC, and the universities.

AHEAD has three Results Areas:

Results Area 1: Increasing Enrollment in Priority Disciplines for Economic Development

Results Area 2: Improving the Quality of Higher Education

Results Area 3: Developing a Culture of Research and Development, Innovation and Commercialization (RDIC) in Universities. Results Area 3 consists of three sub systems.

1. Development- Oriented Research (DOR) programs
2. Research and Innovation Commercialization (RIC) programs
3. Development of University-Business Linkage (UBL) offices

### **3. TITLE & THE DESCRIPTION OF THE RIC PROJECT:** “Developing speaker diarization technology for real word applications”

Speaker diarization is task of identifying who spoke and when spoke in a multi-talker speech recording which is receiving increased attention in the recent years. The task of speaker diarization is challenging in noisy and channel degraded environments where speech is corrupted by background noise. The aim of this project is to develop deep learning based state-of-the-art speaker diarization technology for practical applications.

### **4. KEY TASKS**

Subject to any specific directives given by the Director/OTS and Project Coordinator, the main duties responsibilities of the candidate as a *Project Assistant* will be to:

- Facilitate the work of the Research and Innovation Commercialization (RIC) program by assisting to the OTS, Project Coordinator and Deputy Coordinator of the RIC.
- Assist the OTS, Project Coordinator in the Procurement activities of the RIC Project in the following areas.
  - a. Maintaining good rapport with Project Coordinator, Deputy Coordinator, Research Assistants of the RIC and OTS.
  - b. Maintaining an efficient filing system & records.
  - c. Maintaining and updating administrative files with necessary confidentiality where required.
  - d. Maintaining proper financial records for all RIC expenses.
  - e. Submission of accurate analytical & timely financial reports & other reports as stipulated by OMST in respect of RIC instinct complies with all financial regulations with the approval of DD-Finance.
  - f. Updating the Project Achievement Template (PAT) monthly on the progress of RIC with the consultation of project coordinator
  - g. Any other relevant duties as assign by the Director / OTS, Project Coordinator and Deputy Coordinator.
- Assist in intellectual property protection and commercialization
  - a. Assist the project coordinator and the research team securing intellectual property rights and commercialization of it.
  - b. Conduct extensive patent search via available databases

- c. Prepare disclosure and filing documents for patents and other intellectual properties as per the instruction of project coordinator
- d. Assist the project coordinator in filing documents with National Intellectual Property Office(NIPO)/World Intellectual Property Office (WIPO) or any other appropriate entity
- e. Work closely with UBL-Jaffna and the commercial partner on intellectual property (IP) licensing and drafting licensing agreements based on the IP policy of University of Jaffna.

Subject to the specific instructions from the project coordinator, roles of a candidate as a **Research Assistant** shall be, but not limited to the following:

- a. Assists the Project Coordinator and the research team to achieve the assigned KPIs (key performance indicator) within the timeline
- b. Implementation of deep learning based x-vector speaker diarization and testing with NIST and DIHARD dataset
- c. Proposing (develop?) noise compensation and domain compensation approaches to improve the speaker diarization performance in noisy conditions and different recording conditions
- d. Investigating deep learning approaches to detect the overlap and improve the performance
- e. Multi speaker dataset collection and testing
- f. Investigating how to optimize the computationally intensive steps
- g. Develop the complete system (prototype) for real world scenario from research outcomes
- h. Assists with preparation of manuscripts and conducting seminars for dissemination of research findings
- i. Able to work at University of Jaffna main campus as well as Kilinochchi premises as per the instructions given by the project coordinator
- j. Maintain a research log book to update the daily research progress
- k. Submit weekly/monthly research progress reports to project coordinator/deputy coordinator
- l. Work closely with the industry partner on developing product for commercial deployment and testing as per instruction given project coordinator.

## **5. METHOD OF RECRUITMENT**

By open advertisement in the newspaper and in the University website. Selection by interview among the shortlisted candidates. Successful candidate should be able to start the work immediately. This is a full-time position. Initially the contract appointment shall be for a period of 12 months. The position may be renewed based on performance and need during the period of the operation.

## **6. REMUNERATION**

A monthly payment of LKR 70,000/= (it includes cost of living allowance) and applicable EPF & ETF will be paid. Payments will be made on the approval by the OTS/Director on the recommendation of the Project Coordinator.

## **7. REQUIRED QUALIFICATIONS & EXPERIENCES**

- Bachelor's degree in Computer Science, Engineering, IT OR related fields which is recognized by the UGC. Priority will be given first class honors
- A track record of research as evidenced by publications/ presentations as an undergraduate or post graduate would be an added advantage
- Prior experience in machine learning and programming (C++, python)
- Awareness on intellectual property and commercialization will be an added advantage

**8. Age Limit :** Not more than 35 years on the closing date of application

## **9. PROFESSIONAL COMPETENCIES REQUIRED**

- Knowledge in machine learning and deep learning
- Knowledge in python, bash scripting and parallel processing
- High level of proficiency in written and spoken English.
- Proven ability to handle operation activities related to finance and procurement activities in the University in accordance with the World Bank Guidelines.
- Ability to function effectively in a team environment inspiring trust and cooperation of other team members.
- Ability to communicate effectively orally in Sinhala or Tamil.
- Ability to communicate in English with the World Bank, Ministry of Higher Education, Technology and Innovation , UGC, OMST and others.
- Proven analytical skills
- Ability to work independently in a research team
- Awareness in intellectual property protection and commercialization