

# Proceedings of the SICSA Workshop on Reasoning, Explanation and Application of Large Language Models

## Preface

In the last few years, Large Language Models (LLMs) underpinned by rapid advancements in Artificial Intelligence (AI) have grabbed the attention of academia, industry and the general public. Demonstrating hence before unseen capability to deal with a wide-range of tasks across data modalities, LLMs have opened research avenues across the broad domains of knowledge-management tasks. Equally however, these advancements create new opportunities and challenges, both in the design of LLMs and in their practical application.

Among these is the challenge of integrating reasoning within LLM architectures, to prevent repetition of mistakes or spreading of disinformation. In such circumstances, explainability and traceability of model outcomes becomes paramount, particularly when these algorithms present opportunity for optimisation within safety-critical domains, such as healthcare. Understanding the limits of LLM performance in such domains is paramount, with a need for the identification of robust evaluation measures to ensure that these algorithms are working safely and effectively in situ.

## The Event

The SICSA REALLM Workshop 2024 was designed to present a forum for the dissemination of research related to Large Language Models (LLMs). The event was organised into several themed sessions.

- **Session 1** - LLMs and Applications
- **Session 2** - Reasoning with Natural Language
- **Session 3** - Retrieval-Augmented Generation

The SICSA REALLM Workshop 2024 was an incredible success. We were proud to welcome attendees from a mix of industrial organisations and academic institutions. A total of ten papers were submitted from authors around the world for peer review by the programme committee. Eight submissions were accepted and presented during the workshop.

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*SICSA REALLM Workshop 2024*



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## **Organising Committee**

This workshop was only possible through the hard work and dedication of several individuals.

### **Workshop Chairs**

- Dr Kyle Martin (Robert Gordon University)
- Prof Nirmalie Wiratunga (Robert Gordon University)
- Prof Ehud Reiter (University of Aberdeen)

### **Local Organisers**

- Pedram Salimi (Robert Gordon University)
- Vihanga Wijayasekara (Robert Gordon University)

### **Programme Committee**

- Ikechukwu Nkisi-Orji (Robert Gordon University)
- Dr Stewart Massie (Robert Gordon University)
- Dr David Corsar (Robert Gordon University)
- Dr Wei Zhao (University of Aberdeen)
- Dr Arabella Sinclair (University of Aberdeen)
- Dr Ruvan Weerasinghe (Informatics Institute of Technology)
- Dr Anjana Wijekoon (University College London)

## **Supporting Organisations**

This workshop is produced using funding from the Scottish Informatics and Computer Science Alliance (SICSA). It has been developed in collaboration between the Robert Gordon University Artificial Intelligence and Reasoning (AIR) research group, and the University of Aberdeen ARIA research group.

The organising committee would like to thank all of our authors and attendees. Without you, this event could not have happened.