

Reconfiguring Communication through Technology

This session explores how communication becomes distributed across humans and technologies. Engaging with spoken, signed, and written modalities, and with practices such as video-based signing, AR glasses, and AI translation, it considers how technological mediation reshapes communicative relations and possibilities for access.

**Date: Tuesday 11
November 2025**

**Location: National Robotarium -
Multiplex Room**

10:30 Welcome by LINCS HoR
Marion Winters

10:35 Welcome by Annelies
Kusters (event organiser)

10:40 Presentation by Annelies
Kusters: Signing and technology:
chaining in distributed practice

10:55 Presentation by Richard
Bowden: Translating between Sign
and spoken language using AI

11:25 Break - 15 minutes

11:40 Presentation by Mathini
Sellathurai: Hearing glasses

11:55 Presentation by Robert
Adam and Sujit Sahasrabudhe:
Cross-signing

12:10 Discussion - led by
Marion Winters

12:30 Tour in Robotarium

Session co-organized by the Department
of Languages and Intercultural Studies
and the National Robotarium, Heriot-
Watt University

Signing and technology: chaining in distributed practice: This presentation examines how signers use *chaining*—the strategic linking of signs, writing, and digital tools—to communicate across languages and modalities in technologically mediated environments. It reframes language as *distributed* across people, devices, and spaces, highlighting how calibration and cooperation unfold through interactive platforms.

Annelies Kusters is Professor of Sociolinguistics in the Department of Languages and Intercultural Studies, at Heriot-Watt University.

Translating between Sign and spoken language using AI: This talk will give a history and overview of the current state of the art in using AI for sign language translation. It will provide an overview of current projects at Surrey that are working towards automatic translation and AI tools under development for data processing and linguistic annotation/study. The talk will also introduce Signapse, a University of Surrey spin-out, deploying earlier versions of these technologies in real-world contexts such as transport. Finally the talk will discuss current challenges from a technical, societal and ethical perspective.

Richard Bowden is Professor of Computer Vision and Machine Learning within the Centre for Vision Speech and Signal Processing at the University of Surrey.

Hearing glasses: In this talk, we explore how AI and 5G cloud processing enhance communication for people with hearing loss. Smart devices like AR glasses and hearing aids use low-latency, high-bandwidth links to deliver clean audio and visual cues. Future 6G and sign language recognition will enable seamless multimodal interaction in noisy environments. This IoT-driven system empowers reduced-capability users with real-time clarity and accessibility.

Mathini Sellathurai is an IEEE Fellow and Professor of Signal Processing and Wireless Communications at Heriot-Watt University, Edinburgh.

Cross-signing: This presentation examines how communication via online platforms influences signing styles and strategies used to facilitate understanding across different sign languages. The resulting dataset will contribute to the development of an annotated corpus comprising both intra-sign language and inter-sign language interactions. Communicative strategies observed include *calibration* techniques, such as pointing, gesturing, mouthing, writing, and drawing upon linguistic resources from the sign language(s) involved in the interaction, as well as repair strategies.

Robert Adam is Associate Professor of Languages and Intercultural Communication at Heriot-Watt University, and Programme Director for British Sign Language.

Sujit Sahasrabudhe is Research Associate at Heriot-Watt University.