

Title:

Artificial Intelligence and Communication Sciences and Disorders: A Bidirectional Frontier

Abstract:

This presentation reviews the current state of Artificial Intelligence (AI) in Communication Sciences and Disorders (CSD) and explores future opportunities for both fields.

Theme 1: AI for Communication Sciences and Disorders

AI holds significant potential for advancing both clinical practice and research in CSD. This review covers the latest trends in AI applications for enhancing research methodologies, diagnosing and treating communication disorders, and ultimately improving efficiency in care.

Theme 2: Communication Sciences and Disorders for AI

Insights from CSD research can significantly enhance AI technologies. This theme explores how understanding human communication processes can guide AI development, offering new perspectives that improve AI's ability to understand human communication.

Example: Multimodal Synchronization in Language Development

Understanding synchronization in communication, both verbal and non-verbal, is crucial for gaining developmental insights, diagnosing communication disorders, and enhancing early interpersonal skills. This study utilizes AI, statistical methods, mechanistic modeling of dynamical systems, and psycholinguistic insights for modeling, prediction, and inference of verbal and non-verbal synchronization in children across various age groups. It advances our understanding of typical child communication development and provides tools for clinical use. This research is the product of an interdisciplinary collaboration involving a data scientist, cognitive linguist, developmental psycholinguist, and speech and language pathologist.

This presentation aims to inspire clinicians and researchers to harness AI's potential in advancing CSD and contribute CSD insights to AI development, fostering innovations that benefit both fields.