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IBM NALAIYA THIRAN
LITERATURE SURYVEY

TITLE : Real-Time Communication System Powered by AI for Specially abled
TECHNOLOGY : Artificial Intelligence
DOMAIN NAME : Healthcare (HC)
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MENTOR NAME : Venkatesan R

ABSTRACT

The project aims to develop a system that converts the sign language into a human hearing voice in the desired language to convey a message to normal people, as well as convert speech into understandable sign language for the deaf and dumb. We are making use of a convolution neural network to create a model that is trained on different hand gestures. An app is built which uses this model. This app enables deaf and dumb people to convey their information using signs which get converted to human-understandable language and speech is given as output.

INTRODUCTION

In our society, we have people with disabilities. The technology is developing day by day but no significant developments are undertaken for the betterment of these people. Communications between deaf-mute and a normal person has always been a challenging task. It is very difficult for mute people to convey their message to normal people. Since normal people are not trained on hand sign language. In emergency times conveying their message is very difficult. The human hand has remained a popular choice to convey information in situations where other forms like speech cannot be used. Voice Conversion System with Hand Gesture Recognition and translation will be very useful to have a proper conversation between a normal person and an impaired person in any language.

LITERATURE SURVEY

The author describes [1] the development of AI applications is a multidisciplinary effort, involving multiple roles collaborating with the AI developers, an umbrella term they use to include data scientists and other AI-adjacent roles on the same team. During these collaborations, there is a knowledge mismatch between AI developers, who are skilled in data science, and external stakeholders who are typically not. This difference leads to communication gaps, and the onus falls on AI developers to explain data science concepts to their collaborators. In this paper, they report on a study including analyses of both interviews with AI developers and artifacts they produced for communication. Using the analytic lens of shared mental models, they report on the types of communication gaps that AI developers face, how AI developers communicate across disciplinary and organizational boundaries, and how they simultaneously manage issues regarding trust and expectations.

The author advocates [2] for a significant reorientation and reconceptualization of communication studies in order to accommodate the opportunities and challenges introduced by increasingly intelligent machines, autonomous decision-making systems, and smart devices. Historically the discipline of communication has accommodated new technology by transforming these innovations into a medium of human interaction and message exchange. With the computer, this transaction is particularly evident with the development of computer-mediated communication (CMC) in the later half of the 20th century. In CMC, the computer is understood and investigated as a more-or-less neutral channel of message transfer and instrument of human interaction. This formalization, although not necessarily incorrect, neglects the fact that the computer, unlike previous technological advancements, also occupies the position of participant in communicative exchanges. Evidence of this is already available in the science of AI and has been explicitly described by some of the earliest writings on communication and the computer. The essay therefore 1) demonstrates that the CMC paradigm, although undeniably influential and successful, is insufficient and no longer tenable and 2) argues that communication studies needs to rework its basic framework in order to address and respond to the unique technological challenges and opportunities of the 21st century.

The author defines [3] Artificial Intelligence-Mediated Communication (AI-MC) as interpersonal communication in which an intelligent agent operates on behalf of a communicator by modifying, augmenting, or generating messages to accomplish communication goals. The recent advent of AI-MC raises new questions about how technology may shape human communication and requires re-evaluation – and potentially expansion – of many of Computer-Mediated Communication's (CMC) key theories, frameworks, and findings. A research agenda around AI-MC should consider the design of these technologies and the psychological, linguistic, relational, policy and ethical implications of introducing AI into human-human communication. This article aims to articulate such an agenda.

References:

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2. Gunkel, D. J. (2012). Communication and artificial intelligence: Opportunities and challenges for the 21st century. *communication+ 1*, 1(1), 1-25.
3. Hancock, J. T., Naaman, M., & Levy, K. (2020). AI-mediated communication: Definition, research agenda, and ethical considerations. *Journal of Computer-Mediated Communication*, 25(1), 89-100.