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Understanding and characterizing speaker roles within naturalistic task-based communications: The fearless steps APOLLO-11 corpus **FREE** 

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Naturalistic team based speech communications requires specific protocols/procedures to be followed to allow for effective task completion for distributed team members. NASA Apollo-11 was the first manned space mission to successfully bring astronauts to the moon and return them safely. Mission specialists roles within NASA Mission Control (MOCR) are complex and reflected in their communications. In this study, we perform speaker clustering to identify speech segments uttered by the same speaker from recently recovered Fearless Steps APOLLO corpus

(CRSS-UTDallas). We propose a pretrained network to obtain speaker embeddings and use a framework that builds on these learned embeddings which achieves a clustering accuracy of 73.4%. We also track/tag key speakers-of-interest across three critical mission phases and analyze speaker roles based on speech duration. NASA communication protocols dictate that information be communicated in a concise manner. In automated communication analysis, individuals higher in trait dominance generally speak more and gain more control over group processes. Hence, speaker duration of primary- versus -secondary speaker and speaker turns are metrics used to determine speaker role. This analysis provides greater understanding of communications protocol and serves as a lasting tribute to the «Heroes Behind the Heroes of Apollo» as well as preserve "words spoken in space."

## Topics

<u>Speech communication,</u> <u>Telecommunication networks, The Moon</u>

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