

## **Possibilities, Challenges and the State of the Art of Automatic Speech Recognition in Air Traffic Control**

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**Abstract :** Over the past few years, a lot of research has been conducted to bring Automatic Speech Recognition (ASR) into various areas of Air Traffic Control (ATC), such as air traffic control simulation and training, monitoring live operators for with the aim of safety improvements, air traffic controller workload measurement and conducting analysis on large quantities controller-pilot speech. Due to the high accuracy requirements of the ATC context and its unique challenges, automatic speech recognition has not been widely adopted in this field. With the aim of providing a good starting point for researchers who are interested bringing automatic speech recognition into ATC, this paper gives an overview of possibilities and challenges of applying automatic speech recognition in air traffic control. To provide this overview, we present an updated literature review of speech recognition technologies in general, as well as specific approaches relevant to the ATC context. Based on this literature review, criteria for selecting speech recognition approaches for the ATC domain are presented, and remaining challenges and possible solutions are discussed.

**Keywords :** automatic speech recognition, asr, air traffic control, atc

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