Optimizing Lip Reading Using Convoluted Neural Networks

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The intersection of artificial intelligence (AI) and lip reading presents a promising avenue in communication technology, particularly for enhancing accessibility and human-computer interaction. This paper investigates the potential of AI-driven lip reading using convolutional neural networks (CNNs). Leveraging advances in machine learning and computer vision, the study explores the multifaceted benefits of AI-powered lip reading, ranging from aiding the hearing-impaired to facilitating communication in noisy environments. Experimental procedures involve facial landmark detection using Google's MediaPipe and training AI models with TensorFlow. Results indicate that models trained exclusively on lip features exhibit superior accuracy compared to those incorporating additional facial landmarks. Furthermore, refocusing techniques enhance accuracy, albeit at the cost of increased processing time. The study underscores the potential for optimizing real-time lip reading applications by training models on critical data points essential for human speech comprehension. Overall, this research contributes to the growing field of AI-driven lip reading, emphasizing its role in revolutionizing communication paradigms and addressing challenges in diverse real-world scenarios.

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