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Authors:	Zhuohao Zhang, Pengcheng Li, Phurin Rangpong, Akima Connelly and Tohru Yagi (Tokyo Institute of Technology, Japan)
Email:	chiyo.t.aa@m.titech.ac.jp

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Abstract

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A speech brain-computer interface (BCI) system could enable people to communicate by imagining speech. BCIs are categorized into active BCIs and reactive BCIs [1]. Reactive BCIs operate by decoding a person's reactions to external stimuli. In contrast, active BCIs allow individuals to imagine freely, decoding brain signals to understand their thoughts. Active BCIs offer greater ease of use. However, decoding spontaneous thought signals is significantly more complex. To train more complicated models for active BCIs, users must perform numerous challenging active imagery tasks to help the model learn relevant features. This process is a huge obstacle. Therefore, we propose a novel method that uses passive listening tasks to replace active tasks for training models in active BCIs. To achieve this objective, we conducted a comparative study on the characteristics of auditory perception and imagery.

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