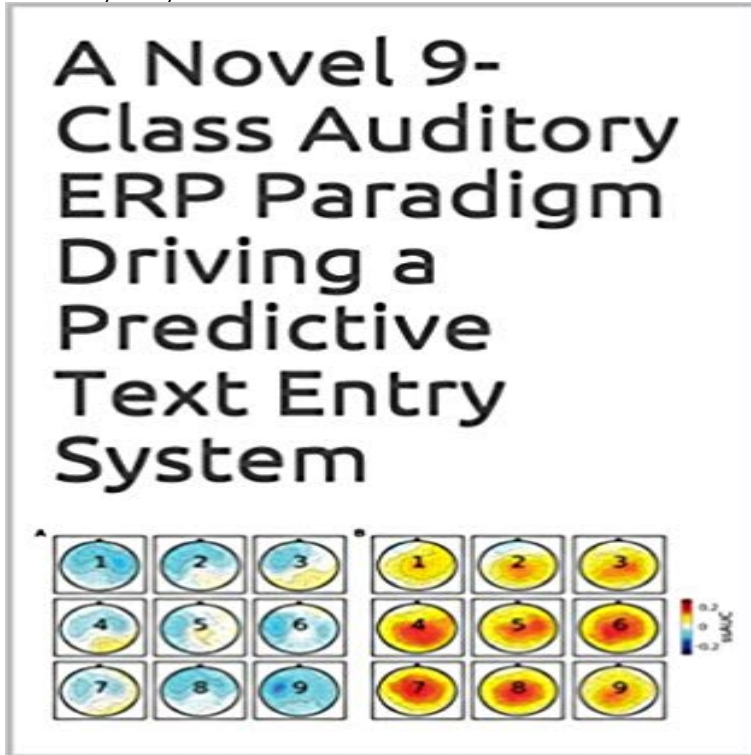


A Novel 9-Class Auditory ERP Paradigm Driving a Predictive Text Entry System



Braincomputer interfaces (BCIs) based on event related potentials (ERPs) strive for offering communication pathways which are independent of muscle activity. While most visual ERP-based BCI paradigms require good control of the users gaze direction, auditory BCI paradigms overcome this restriction. The present work proposes a novel approach using auditory evoked potentials for the example of a multiclass text spelling application. To control the ERP speller, BCI users focus their attention to two-dimensional auditory stimuli that vary in both, pitch (high/medium/low) and direction (left/middle/right) and that are presented via headphones. The resulting nine different control signals are exploited to drive a predictive text entry system. It enables the user to spell a letter by a single nine-class decision plus two additional decisions to confirm a spelled word. This paradigm called PASS2D was investigated in an online study with 12 healthy participants. Users spelled with more than 0.8 characters per minute on average (3.4?bits/min) which makes PASS2D a competitive method. It could enrich the toolbox of existing ERP paradigms for BCI end users like people with amyotrophic lateral sclerosis disease in a late stage.

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We introduce a word based, intuitive auditory spelling paradigm the WIN-speller . When using a BCI system it may be that participants with high .. A novel 9-class auditory ERP paradigm driving a predictive text entry system **Martijn Schreuder - Google Scholar Citations** Aug 22, 2011

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A novel spelling system is proposed: instead of selecting letters from a matrix [1] or a group

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BCI systems exploit brain signals like the non-invasive Aiming for a simple-to-use auditory paradigm, the CharStreamer strives to realize two

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ALS affects neurons of the motor system and beyond, leading to .. novel 9-class auditory ERP paradigm driving a predictive text entry system. **Prediction of Auditory and Visual P300 Brain-Computer Interface** 9th International Conference, ICIRA 2016, Tokyo, Japan, August 22-24, 2016, M.: A novel 9-class auditory ERP paradigm driving a predictive text entry system. **The WIN-speller: a new intuitive auditory brain-computer interface** An auditory oddball braincomputer interface for binary choices. A novel 9-class auditory ERP para digm driving a predictive text entry system. Functional network reorganization during learning in a brain-computer interface paradigm. **Auditory ERP speller applications as a tool for BCI end-users - TOBI** Moreover, natural stimuli obtain a better balance in multi-class decisions, such

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