Abstracts

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Editor in Chief: Bogdan Pătruţ

1. Motor Imagery Signal Classification for BCI System Using Empirical Mode Décomposition and Bandpower Feature Extraction

Dalila Trad, Tarik Al-Ani, Mohamed Jemni

Abstract

The idea that brain activity could be used as a communication channel has rapidly developed. Indeed, Electroencephalography (EEG) is the most common technique to measure the brain activity on the scalp and in real-time. In this study we examine the use of EEG signals in Brain Computer Interface (BCI). This approach consists of combining the Empirical Mode Decomposition (EMD) and band power (BP) for the extraction of EEG signals in order to classify motor imagery (MI). This new feature extraction approach is intended for non-stationary and non-linear characteristics MI EEG. The EMD method is proposed to decompose the EEG signal into a set of stationary time series called Intrinsic Mode Functions (IMF). These IMFs are analyzed with the bandpower (BP) to detect the characteristics of sensorimotor rhythms (mu and beta) when a subject imagines a left or right hand movement. Finally, the data were just reconstructed with the specific IMFs and the bandpower is applied on the new database. Once the new feature vector is rebuilt, the classification of MI is performed using two types of classifiers: generative and discriminant. The results obtained show that the EMD allows the most reliable features to be extracted from EEG and that the classification rate obtained is higher and better than using the direct BP approach only. Such a system is a promising communication channel for people suffering from severe paralysis, for instance, people with myopathic diseases or muscular dystrophy (MD) in order to help them move a joystick to a desired direction corresponding to the specific motor imagery.

2. Computational Intelligence in a Human Brain Model

Viorel Gaftea

Abstract

This paper focuses on the current trends in brain research domain and the current stage of development of research for software and hardware solutions, communication capabilities between: human beings and machines, new technologies, nano-science and Internet of Things (IoT) devices. The proposed model for Human Brain assumes main similitude between human intelligence and the chess game thinking process. Tactical & strategic reasoning and the need to follow the rules of the chess game, all are very similar with the activities of the human brain. The main objective for a living being and the chess game player are the same: securing a position, surviving and eliminating the adversaries. The brain resolves these goals, and more, the being movement, actions and speech are sustained by the vital five senses and equilibrium. The chess game strategy helps us understand the human brain better and easier replicate in the proposed 'Software and Hardware' SAH Model.

3. Redesigning a Flexible Material Master Data Application with Language Dependency

Mihaela Muntean, Cornelia Muntean

Abstract

Based on some inconveniences identified within a material master data application of the SAP MM module, the current paper proposes an alternative technical solution for designing the popup layout screen of the material master data application with respect to language dependency. The application should present the text of all tabs, areas and fields in the desired language based on the user logon preferences. Also it has been implemented a possibility to sort the data in the desired order, so the customer isn't forced, as before, to search for a certain field, when updating certain materials. The proposed solution suggests the use of five database tables, combined within three maintenance views, which build a view cluster. The advantage of the redesigned application consists of easier maintainability of the data (fields, areas and tabs can be easily added, deleted, reordered and renamed) and all the data within the view cluster can be translated into any language supported by the system.

4. From OER To Open Education: Perceptions of Student Teachers after Creating Digital Stories with Creative Common Resources

Gemma Tur, Santos Urbina, Juan Moreno

Abstract

The current study explores the perceptions of three groups of student teachers in Spain after having used open licensed resources to construct their storytelling artifacts as OER. The theoretical framework briefly reviews the concept of Open Education and OER and the affordance and drawbacks previously observed in research. Data is obtained through a survey that enables the observation of students' tendency to adapt OER, Open Educational Practices and the Open Movement. The results reveal a general positive impact on student perceptions, although nuances and challenges are observed. The part containing the discussion and conclusions suggests some implications of this current step of research for future implementation in Teacher Education and related research.

5. The Presence and Activity on Facebook of the Informative Travel Organizations in Romania

Alexandru Mircea Nedelea, Mihai Costea

Abstract

In the context of a general increase in tourism activity and in the number of trips, and given that the consumption preferences of tourists are changing rapidly, the need for information becomes urgent and there is a concomitant development of public and private organizations involved in providing the necessary information to tourists who reach for the first time a tourist destination. This category includes tourist information centers (TICs), tourism promotion associations and tourism clubs.

Being intensively based on information, the activity of informative tourism organizations suffers multiple changes, often radical, proving to be a favorable environment for the implementation of new information technologies due to their role in terms of providing and sharing information. In this sense, Facebook has special implications, being considered one of the fastest and most effective tools of Social Media, especially regarding the distribution of information and the promotion of products and services.

The major objective of this research aims to highlight the stage of development of informative tourism organizations in Romania through the filter of Facebook visibility and communication. In this regard, we analysed the current state of presence and communication on Facebook of 109 tourism entities from 25 different counties of Romania: 43 tourist information centers, 44 entities with the name of association (tourism promotion association, ecotourism associations etc.), 18 travel clubs and 4 tourist information point/offices.

6. The Interplay among Emotional Intelligence, Classroom Management, and Language Proficiency of Iranian EFL Teachers

Hadi Hamidi, Mohammad Khatib

Abstract

The present study was an attempt to investigate the interplay among Iranian EFL teachers' emotional intelligence, classroom management, and their general English language proficiency. The result of the data analysis showed that: 1) there was a statistically significant relationship between the emotional intelligence and the classroom management of Iranian EFL teachers, 2) there was a statistically significant relationship between the emotional intelligence and the language proficiency of Iranian EFL teachers, and 3) there was a statistically significant relationship between the classroom management and the language proficiency of Iranian EFL teachers. Teacher trainers, researchers in teacher education, and language teachers may benefit from the findings of the present research.

7. The Effect of Caretakers' Frequency and Positional Saliency on Noun Bias in Persian Children: A Study on Child Language Development

Hassan Soleimani, Mahboubeh Rahmanian, Manoochehr Jafari Gohar

Abstract

Noun bias in children's early vocabulary development is a long-held belief. The present study intended to examine the correlation between the input features like frequency and positional saliency in infant-directed speech and the noun bias characteristic of infants in their early child lexical development. To this purpose, the utterances of ten Persian children aged 1;4 and their caretakers at a kindergarten in Isfahan, Iran, were transcribed for twelve sessions. Persian language with its SOV order that gives much importance to verbs compared to nouns can make noun bias hypothesis of infants unstable. The results demonstrated a positive correlation between the frequency of nouns and verbs in Persian caretakers' utterances and the lexical development of children on age of 1;4. The transcriptions also identified a significant noun bias in the utterances of Persian children. Therefore, the lexical items in adult utterances can predict the initial lexical repertoire of infants. It can be inferred that nurture and the utterances heard by children might play a significant role in child vocabulary development.

8. On the Relationship between Brain Laterality and Language Proficiency in L2: A Replication Study

Nima Shakouri, Parviz Maftoon

Abstract

The present paper attempted to investigate whether there is any significant relationship between participants' brain laterality and L2 proficiency level. To carry out the experiment, 30 participants administered in the present study. Fifteen of them did not have any English language learning experience and were at the start of language learning, while the rest had attended L2 learning classes for about 2 years in a popular English language center, located in Bandar-e Anzali, Iran. Finally, the researchers concluded that the activity of the right hemisphere went up by the increase in language proficiency among bilinguals. Thereupon, the result of the paper was at variance with Albert and Obler's (1978) early work on hemispheric differentiation, which indicated that bilinguals were less hemispheric dominant than monolinguals.

9. Two New Software Behavioral Design Patterns: Obligation Link and History Reminder

Stefan Andrei, Arnob Saha, Sojibur Rahman

Abstract

Finding proper design patterns has always been an important research topic in the software engineering community. One of the main responsibilities of the software developers is to determine which design pattern fits best to solve a particular problem. Design patterns support the effort of exploring the use of artificial intelligence in better management of software development and maintenance process by providing faster, less costly, smarter and on-time decisions (Pena-Mora & Vadhavkar, 1996). There has been a permanent interest in finding new design patterns, especially in the last two decades. Many new design patterns apply in various areas of computer science, such as software security, software parallelism, large-scale software evolving, artificial intelligence, and more. To the best of our knowledge, the "Obligation Link" and "History Reminder" design patterns are new and can be applied in software development in many areas of computer science including artificial intelligence.

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