

1. Record Nr.	UNISA996601560703316
Autore	Ferrández Vicente José Manuel
Titolo	Artificial Intelligence for Neuroscience and Emotional Systems : 10th International Work-Conference on the Interplay Between Natural and Artificial Computation, IWINAC 2024, Olhão, Portugal, June 4-7, 2024, Proceedings, Part I
Pubbl/distr/stampa	Cham : , : Springer, , 2024 ©2024
ISBN	3-031-61140-3
Edizione	[1st ed.]
Descrizione fisica	1 online resource (560 pages)
Collana	Lecture Notes in Computer Science Series ; ; v.14674
Altri autori (Persone)	Val CalvoMikel AdeliHojjat
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Intro -- Preface -- Organization -- Contents - Part I -- Contents - Part II -- Machine Learning in Neuroscience -- Morning Anxiety Detection Through Smartphone-Based Photoplethysmography Signals Analysis Using Machine Learning Methods -- 1 Introduction -- 2 Methods -- 2.1 Data Collection -- 2.2 Pulse Wave Extraction -- 2.3 Feature Extraction -- 2.4 Stress Classification -- 2.5 Fisher's Discriminant Ratio -- 3 Results and Discussion -- 4 Conclusion -- References -- Visualizing Brain Synchronization: An Explainable Representation of Phase-Amplitude Coupling -- 1 Introduction -- 2 Materials and Methods -- 2.1 The LEEDUCA Dataset -- 2.2 Data Preprocessing -- 2.3 Phase-Amplitude Coupling -- 2.4 Visualization of Local PAC Patterns -- 3 Consistency of Temporal Patterns -- 4 Results and Discussion -- 5 Conclusions -- References -- Enhancing Neuronal Coupling Estimation by NIRS/EEG Integration -- 1 Introduction -- 2 Materials and Methods -- 2.1 Dataset and Preprocessing -- 2.2 CFS Image Sequences -- 2.3 fNIRS Functional Activation -- 2.4 Classification -- 3 Results -- 4 Conclusions and Future Work -- References -- Causal Mechanisms of Dyslexia via Connectogram Modeling of Phase Synchrony -- 1 Introduction -- 2 Material and Methods -- 2.1 Data Acquisition -- 2.2 Preprocessing -- 2.3 Hilbert Transform -- 2.4

Granger Causality -- 2.5 Feature Selection -- 2.6 Connectograms -- 2.7 Machine Learning Classification -- 3 Results -- 4 Conclusions -- References -- Explainable Exploration of the Interplay Between HRV Features and EEG Local Connectivity Patterns in Dyslexia -- 1 Introduction -- 2 Materials and Methods -- 2.1 Database -- 2.2 Cross Frequency Coupling with ISPC -- 2.3 Heart Rate Variability Descriptors -- 2.4 Explainable Regression Experiments -- 3 Results -- 4 Discussion -- 5 Conclusion -- References.

Enhancing Intensity Differences in EEG Cross-Frequency Coupling Maps for Dyslexia Detection -- 1 Introduction -- 2 Materials and Methods -- 2.1 Database -- 2.2 Generation of CFC Maps from EEG Signals -- 2.3 Enhancing Differences in CFS Maps Through Histogram Transformation -- 2.4 Quantification of the Improvement -- 3 Results -- 4 Discussion and Conclusions -- References -- Improving Prediction of Mortality in ICU via Fusion of SelectKBest with SMOTE Method and Extra Tree Classifier -- 1 Introduction -- 2 Literature Review -- 3 Materials and Methods -- 3.1 Dataset Used -- 3.2 Preprocessing -- 3.3 AutoML -- 4 Result and Discussion -- 5 Conclusion -- References -- A Cross-Modality Latent Representation for the Prediction of Clinical Symptomatology in Parkinson's Disease -- 1 Introduction -- 2 Materials and Methods -- 2.1 Dataset and Preprocessing -- 2.2 Multi-modal Joint Latent Variable Model -- 2.3 Evaluation -- 3 Results and Discussion -- 4 Conclusions -- References -- Zero-Shot Ensemble of Language Models for Fine-Grain Mental-Health Topic Classification -- 1 Introduction -- 2 Related Works -- 3 Methodology -- 4 Experiments and Results -- 5 Conclusions -- References -- Enhancing Interpretability in Machine Learning: A Focus on Genetic Network Programming, Its Variants, and Applications -- 1 Introduction -- 2 The Most Important Versions of GNP -- 2.1 Some Specific Applications of GNP Algorithm -- 3 Conclusion and Future Works -- References -- Enhancing Coronary Artery Disease Classification Using Optimized MLP Based on Genetic Algorithm -- 1 Introduction -- 2 Related Works -- 3 Materials and Methods -- 3.1 Dataset -- 3.2 Data Preprocessing -- 3.3 The Important Process of This Study -- 4 Results and Discussion -- 5 Conclusion -- References -- Extracting Heart Rate Variability from NIRS Signals for an Explainable Detection of Learning Disorders. 1 Introduction -- 2 Material and Methods -- 2.1 Participants -- 2.2 NIRS Acquisition -- 2.3 Extraction of Heart Signal from NIRS -- 2.4 Preprocessing -- 2.5 Classification and Explainability -- 3 Results -- 4 Conclusions and Future Work -- References -- Diagnosis of Parkinson Disease from EEG Signals Using a CNN-LSTM Model and Explainable AI -- 1 Introduction -- 2 Proposed Method -- 2.1 Dataset -- 2.2 Preprocessing -- 2.3 Deep Learning Model -- 3 Statistical Metrics -- 4 Experiment Results -- 5 Discussion, Conclusion, and Future Works -- References -- Early Diagnosis of Schizophrenia in EEG Signals Using One Dimensional Transformer Model -- 1 Introduction -- 2 Proposed Method -- 2.1 Dataset -- 2.2 Preprocessing -- 2.3 Feature Extraction Based on Transformer -- 2.4 Classification -- 3 Statistical Metrics -- 4 Experiment Results -- 5 Discussion, Conclusion, and Future Works -- References -- Diagnosis of Schizophrenia in EEG Signals Using dDTF Effective Connectivity and New PreTrained CNN and Transformer Models -- 1 Introduction -- 2 Proposed Method -- 2.1 Dataset -- 2.2 Preprocessing -- 2.3 Feature Extraction and Classification -- 3 Experiment Results -- 4 Discussion, Conclusion, and Future Works -- References -- A Survey on EEG Phase Amplitude Coupling to Speech Rhythm for the Prediction of Dyslexia -- 1 Introduction -- 2 Methods -- 2.1 Data Acquisition and Preprocessing -- 2.2 Cross-Frequency Coupling -- 2.3 Feature Aggregation and Classification -- 2.4

Evaluation and Interpretability -- 3 Results and Discussion -- 3.1 Best Performing Stimuli and PAC Measures -- 3.2 Effect of Classification Hyperparameters -- 3.3 Assymmetric Differences Between DLX and CTL -- 4 Conclusions -- References -- Comprehensive Evaluation of Stroke Rehabilitation Dynamics: Integrating Brain-Computer Interface with Robotized Orthotic Hand and Longitudinal EEG Changes. 1 Introduction -- 2 Material and Methods -- 2.1 Participants -- 2.2 Description of the Experimentation -- 2.3 EEG Data Analysis -- 3 Results -- 3.1 Time Frequency -- 3.2 Topographic Maps -- 3.3 Power Bands -- 4 Discussion, Study Limitations and Future Work -- 5 Conclusion -- References -- PDBIGDATA: A New Database for Parkinsonism Research Focused on Large Models -- 1 Introduction -- 2 Database Description -- 3 Experiments and Results -- 4 Conclusions -- References -- A Comparative Study of Deep Learning Approaches for Cognitive Impairment Diagnosis Based on the Clock-Drawing Test -- 1 Introduction -- 2 Materials and Methods -- 2.1 CDT Databases -- 2.2 Image Preprocessing -- 2.3 Convolutional Neural Network -- 2.4 Attentive Pairwise Interaction Network -- 3 Experiments and Results -- 4 Discussion -- 5 Conclusion -- References -- Artificial Intelligence in Neurophysiology -- Prediction of Burst Suppression Occurrence Under General Anaesthesia Using Pre-operative EEG Signals -- 1 Introduction -- 2 Methods -- 2.1 Data -- 2.2 Pre-processing -- 2.3 Training -- 2.4 Models Evaluation -- 2.5 Generating Explanations with SHAP -- 3 Experiments -- 4 Results and Discussion -- 4.1 Models Evaluation -- 4.2 Explainability Analysis -- 4.3 Limitations and Future Work -- 5 Conclusion -- References -- Advances in Denoising Spikes Waveforms for Electrophysiological Recordings -- 1 Introduction -- 2 Methods -- 2.1 Acquisition System and Dataset -- 2.2 Neural Signal Denoising -- 2.3 Spike Sorting -- 2.4 Implementation Details -- 2.5 Software Testing -- 3 Results -- 3.1 Denoising and Spike Extraction Quality Measurement -- 4 Discussion -- 5 Conclusions -- References -- Analysis of Anxiety Caused by Fasting in Obesity Patients Using EEG Signals -- 1 Introduction -- 2 Materials and Methods -- 2.1 Subjects -- 2.2 Procedure -- 2.3 Data Processing -- 3 Results and Discussion. 4 Conclusions -- References -- Evolution of EEG Fractal Dimension Along a Sequential Finger Movement Task -- 1 Introduction: Fractal Dimension and its Application on EEG Signals Analysis -- 2 Materials and Methods -- 2.1 Dataset and Motor Task -- 2.2 EEG Signals Preprocessing -- 2.3 EMG Signals Preprocessing -- 2.4 Katz Fractal Dimension -- 2.5 KFD Time Windows -- 3 Results -- 4 Conclusion -- References -- Neuromotor and Cognitive Disorders -- Stress Classification Model Using Speech: An Ambulatory Protocol-Based Database Study -- 1 Introduction -- 2 Methods -- 2.1 Database -- 2.2 Feature Extraction -- 2.3 Supervised Classification -- 3 Results -- 4 Discussion -- 5 Conclusion -- References -- Exploring Spatial Cognition: Comparative Analysis of Agent-Based Models in Dynamic and Static Environments -- 1 Introduction -- 2 Methodology -- 2.1 EvoJAX -- 2.2 Materials and Method -- 2.3 Results -- 3 Conclusions and Future Directions -- References -- Machine Learning for Personality Type Classification on Textual Data -- 1 Introduction -- 2 Background -- 3 Materials and Methods -- 3.1 Data Collection: -- 3.2 Feature Extraction -- 3.3 Target Classes -- 3.4 Classification Models -- 3.5 Performance Evaluation Metrics -- 4 Results -- 5 Conclusions -- References -- Grad-CAM Applied to the Detection of Instruments Used in Facial Presentation Attacks -- 1 Introduction -- 2 Related Work and Background -- 2.1 PAD Techniques -- 2.2 XAI Techniques -- 3 Methods and Materials -- 3.1 Design and Implementation -- 3.2 eXplainable Artificial Intelligence Grad-CAM -- 3.3 Procediment -- 3.4

Statistical Analysis -- 3.5 Database -- 4 Results -- 5 Discussion -- 6
Conclusion -- References -- Comparison of an Accelerated Garble
Embedding Methodology for Privacy Preserving in Biomedical Data
Analytics -- 1 Introduction -- 1.1 State of the Art -- 2 Theoretical
Framework.
2.1 Information Comparison.
