

IEEE JOURNAL OF BIOMEDICAL AND HEALTH INFORMATICS

A PUBLICATION OF
THE IEEE ENGINEERING IN MEDICINE AND BIOLOGY SOCIETY
THE IEEE COMMUNICATIONS SOCIETY
THE IEEE SIGNAL PROCESSING SOCIETY



TECHNICALLY COSPONSORED BY THE IEEE COMPUTER SOCIETY



Indexed in PubMed® and MEDLINE®, products of the United States National Library of Medicine



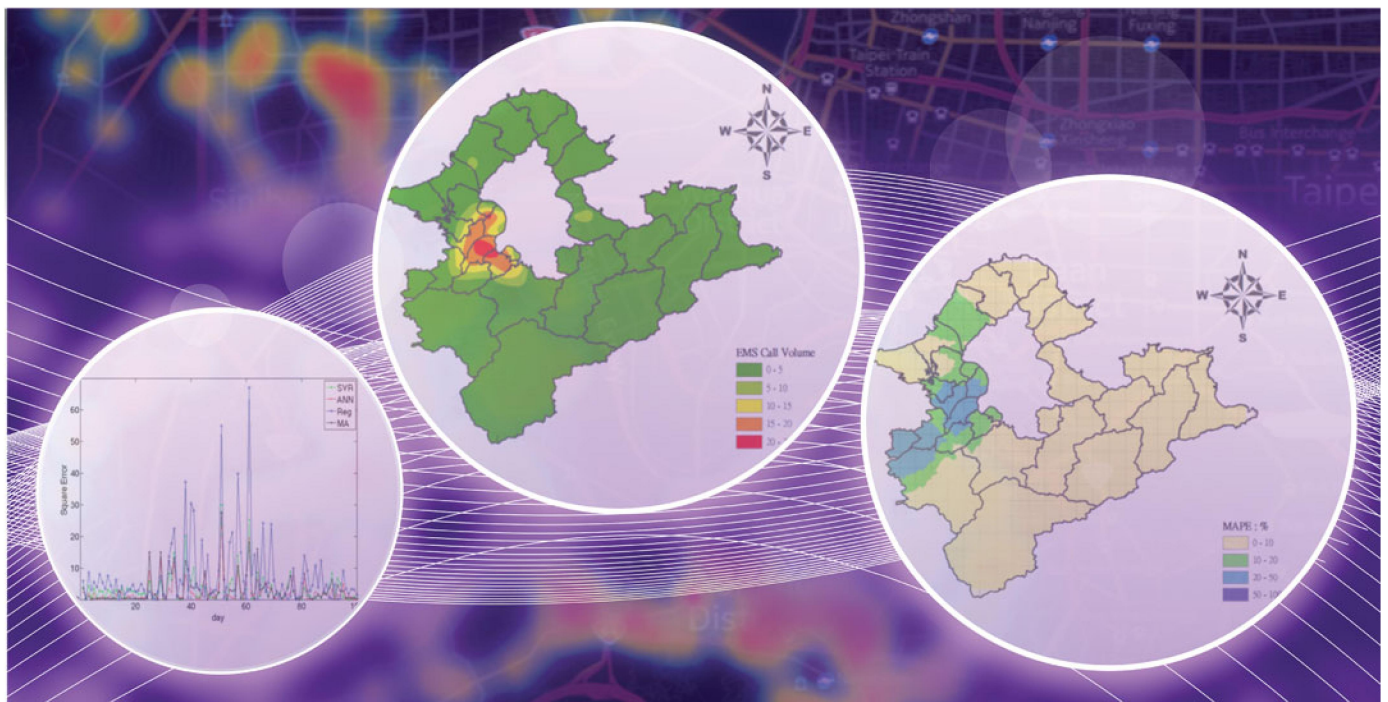
JULY 2016

VOLUME 20

NUMBER 4

IJBHA9

(ISSN 2168-2194)



Demand Forecast using Data Analytics for the Pre-allocation of Ambulances
Albert Y. Chen, Tsung-Yu Lu, Matthew Huei-Ming Ma, and Wei-Zen Sun



IEEE JOURNAL OF BIOMEDICAL AND HEALTH INFORMATICS

A PUBLICATION OF
THE IEEE ENGINEERING IN MEDICINE AND BIOLOGY SOCIETY
THE IEEE COMMUNICATIONS SOCIETY
THE IEEE SIGNAL PROCESSING SOCIETY



TECHNICALLY COSPONSORED BY THE IEEE COMPUTER SOCIETY



Indexed in PubMed® and MEDLINE®, products of the United States National Library of Medicine



JULY 2016

VOLUME 20

NUMBER 4

IJBHA9

(ISSN 2168-2194)

SPECIAL SECTION ON SENSOR INFORMATICS FOR MANAGING MENTAL HEALTH

GUEST EDITORIAL

Sensor Informatics for Managing Mental Health *G. Valenza, V. Carli, A. Lanata, W. Chen, R. Jafari, and E. P. Scilingo* 975

SPECIAL SECTION PAPERS

Assessing Antidepressants Using Intelligent Data Monitoring and Mining of Online Fora	977
. <i>A. Akay, A. Dragomir, and B.-E. Erlandsson</i>	
Systematical Approach for Detecting the Intention and Intensity of Feelings on Social Network	987
. <i>C.-H. Tai, Z.-H. Tan, and Y.-S. Chang</i>	
Design and Implementation of an On-Chip Patient-Specific Closed-Loop Seizure Onset and Termination Detection System . . .	996
. <i>C. Zhang, M. A. B. Altaf, and J. Yoo</i>	
A Framework for Classifying Online Mental Health-Related Communities With an Interest in Depression	1008
. <i>B. Saha, T. Nguyen, D. Phung, and S. Venkatesh</i>	
Inclusion of Respiratory Frequency Information in Heart Rate Variability Analysis for Stress Assessment	1016
. <i>A. Hernando, J. Lázaro, E. Gil, A. Arza, J. M. Garzón, R. López-Antón, C. de la Cámara, P. Laguna, J. Aguiló, and R. Bailón</i>	
Prediction of Impaired Performance in Trail Making Test in MCI Patients With Small Vessel Disease Using DTI Data	1026
. <i>S. Ciulli, L. Citi, E. Salvadori, R. Valenti, A. Poggesi, D. Inzitari, M. Mascalchi, N. Toschi, L. Pantoni, and S. Diciotti</i>	
Predicting Mood Changes in Bipolar Disorder Through Heartbeat Nonlinear Dynamics	1034
. <i>G. Valenza, M. Nardelli, A. Lanata, C. Gentili, G. Bertschy, M. Kosel, and E. P. Scilingo</i>	

(Contents Continued on Page 974)



REGULAR PAPERS

Sensing Informatics

Cascaded Network Body Channel Model for Intrabody Communication *H. Wang, X. Tang, C. S. Choy, and G. E. Sobelman* 1044

Automatic Stress Detection in Working Environments From Smartphones' Accelerometer Data: A First Step *E. Garcia-Ceja, V. Osmani, and O. Mayora* 1053

Automatic Detection and Classification of Convulsive Psychogenic Nonepileptic Seizures Using a Wearable Device *J. Gubbi, S. Kusmakar, A. S. Rao, B. Yan, T. O'Brien, and M. Palaniswami* 1061

Fall Detection Using Smartphone Audio Features *M. Cheffena* 1073

Estimating Energy Expenditure With Multiple Models Using Different Wearable Sensors *B. Cvetković, R. Milić, and M. Luštrek* 1081

Detecting Elementary Arm Movements by Tracking Upper Limb Joint Angles With MARG Sensors *E. B. Mazomenos, D. Biswas, A. Cranny, A. Rajan, K. Maharatna, J. Achner, J. Klemke, M. Jöbges, S. Ortman, and P. Langendörfer* 1088

Application of the Kalman Filter for Faster Strong Coupling of Cardiovascular Simulations *Y. Hasegawa, T. Shimayoshi, A. Amano, and T. Matsuda* 1100

Imaging Informatics

A Novel Brain Networks Enhancement Model (BNEM) for BOLD fMRI Data Analysis With Highly Spatial Reproducibility *N. Wang, W. Zeng, D. Chen, J. Yin, and L. Chen* 1107

Plane Localization in 3-D Fetal Neurosonography for Longitudinal Analysis of the Developing Brain *M. Yaqub, S. Rueda, A. Kopuri, P. Melo, A. T. Papageorghiou, P. B. Sullivan, K. McCormick, and J. A. Noble* 1120

Leveraging Multiscale Hessian-Based Enhancement With a Novel Exudate Impainting Technique for Retinal Vessel Segmentation *R. Annunziata, A. Garzelli, L. Ballerini, A. Mecocci, and E. Trucco* 1129

Local Bit-Plane Decoded Pattern: A Novel Feature Descriptor for Biomedical Image Retrieval *S. R. Dubey, S. K. Singh, and R. K. Singh* 1139

A Fully Automatic Method for Gridding Bright Field Images of Bead-Based Microarrays *A. Datta, A. W.-K. Kong, and K.-C. Yow* 1148

Bioinformatics

α -Information-Based Registration of Dynamic Scans for Magnetic Resonance Cystography *H. Han, Q. Lin, L. Li, C. Duan, H. Lu, H. Li, Z. Yan, J. Fitzgerald, and Z. Liang* 1160

Use of Semisupervised Clustering and Feature-Selection Techniques for Identification of Co-expressed Genes *S. Saha, A. K. Alok, and A. Ekbal* 1171

Medical Informatics

Demand Forecast Using Data Analytics for the Preallocation of Ambulances *A. Y. Chen, T.-Y. Lu, M. H.-M. Ma, and W.-Z. Sun* 1178

Automated Cognitive Health Assessment From Smart Home-Based Behavior Data *P. N. Dawadi, D. J. Cook, and M. Schmitter-Edgecombe* 1188

Admission Control Over Internet of Vehicles Attached With Medical Sensors for Ubiquitous Healthcare Applications *D. Lin, F. Labeau, Y. Yao, A. V. Vasilakos, and Y. Tang* 1195

Mahalanobis–Taguchi System to Identify Preindicators of Delirium in the ICU *B. Buenviaje, J. E. Bischoff, R. A. Roncace, and C. J. Willy* 1205
