# **2013 ICME International Conference on Complex Medical Engineering**

## (CME 2013)

Beijing, China 25-28 May 2013



IEEE Catalog Number: ISBN:

CFP13CME-POD 978-1-4673-2970-5

## Table of Contents

| SA1-1 Visual, auditory, tactile perception and interaction I |   |    |
|--|---|----|
|  | Design and Implementation of Cognitive Examination Systems on Tablet PC<br>Yo-Ping Huang, Tsung-Jung Hsin, Shen-Ing Liu   | 1  |
|  | Influences of Auditory Stimuli in Front and Rear Space on Visual Detection: an Event-related Potential<br>Study<br>Weiping Yang, Qi Li, Tatsuya Ochi, Jingjing Yang, Yulin Gao, Xiaoyu Tang, Satoshi Takahashi, Jinglong<br>Wu                  | 7  |
|  | A Wearable Navigation Aid for Blind People Using a Vibrotactile Information Transfer System<br>Miguel Reyes Adame, Jing Yu, Knut Möller, Edgar Seemann  | 13 |
|  | Difference of Audiovisual Integration between Alzheimer's Disease Patients and Age-matched Healthy<br>Controls: An fMRI Study<br>Lu Yang, Jiajia Yang, Naoya Nakamura, Seiichiro Ohno, Tomoko Kurata, Koji Abe, Jinglong Wu,<br>Susumu Kanazawa | 19 |
|  | Geometric Modeling and Collision Detection Based on Hybrid Bounding Box in Virtual Gallbladder<br>Surgery<br>Lingtao Yu, Tao Wang, Huajian Song, Liqiang Sun, Zhengyu Wang, Lingyao Zhao  | 25 |
|  | Temporal-spatial Unpredictable Auditory Information Modulates Temporal-spatial Coincident Audiovisual<br>Integration<br>Qi Li, Jingjing Yang, Jinglong Wu   | 31 |
| SP1  | SP1-1 Biomedical Image Processing I   |    |
|  | Vessel Segmentation in 2-D Optical Coherence Tomography Images<br>Li-chang Liu, Jiann-der Lee, Yu-wei Hsu, Scott Tseng, Ellen Tseng, Meng-tsan Tsai   | 35 |
|  | Design and Implementation of Magnetic Induction Hyperthermia Treatment Planning Workflow Based on<br>CT Images<br>Zihan Zhuo, Weiming Zhai, Dongyang Cai, Jie Wang, Heng Wang, Jintian Tang   | 40 |
|  | Medical Image Registration Based on Generalized N-dimensional Principal Component Analysis (GND-PCA) and Statistical Shape Deformation Model Songyuan Tang, Yongtian Wang, Rui Xu   | 45 |
|  | Tensor-based Analysis for Measuring Ventricular Volume Increases in Mouse Brain MR Microscopy<br>Lan Lin, Guangyu Bin, Xiaoting Xu, Shuicai Wu  | 50 |
|  | Analysis of Apoptosis Mechanism in SGC-7901 Induced by CSBE with Flow Cytometry and Confocal Laser Scanning Techenology Lei Yu, Yubin Ji, Miao Yu, Shiyong Gao, Xiang Zou, Chenfeng Ji  | 54 |
|  | Simulation of the Virtual Reality based Robotic Catheter System<br>Kangqi Hu, Baofeng Gao, Nan Xiao, Yuan Wang, Shuxiang Guo  | 59 |
| SP2-1 Biomedical Image Processing II                         |   |    |
|  | Evaluation of Feature Selection Algorithms for Detection of Depression from Brain sMRI Scans<br>Kuryati Kipli, Abbas Z. Kouzani, Matthew Joordens   | 64 |

|    | Low Sampling-rate Approach for ECG Signals with Compressed Sensing Theory<br>Mohammadreza Balouchestani, Kaamran Raahemifar, Sridhar Krishnan  | 70  |
|----|--|-----|
|    | Research on an Improved Optimization Algorithm Based on Ant Colony to Solve WBC Scanning Routing<br>Problem<br>Minglei Sun, Qiwei Wang, Quanxian Xie                                       | 76  |
|    | Hessian-based Vessel Enhancement Combined with Directional Filter Banks and Vessel Similarity<br>Xuang Xu, Bo Liu, Fugen Zhou  | 80  |
|    | Medical Image Semantic Annotation Based on MIL<br>Gang Jia, Yuan Feng, Bing Zheng  | 85  |
|    | Runx2 is Involved in Regulating Amelotin Promoter Activity and Gene Expression in Ameloblasts<br>Xiaoying Liu, Yuguang Gao   | 91  |
| SA | 1-2 Information and Communication Technology in Medical I  |     |
|    | Maintenance of Nursing Care Planusing S imilarity-based Data Mining Methods<br>Haruko Iwata, Shusaku Tsumoto, Shoji Hirano   | 97  |
|    | Hierarchical Structure of Human Gas Exchange Models to Improve Parameter Identification<br>Axel Riedlinger, Jörn Kretschmer, Knut Möller   | 103 |
|    | A Research Infrastructure for Real-Time Evaluation of Predictive Algorithms for Intensive Care Units<br>Zhengbo Zhang, Joon Lee, Daniel J. Scott, Li-wei Lehman, Roger G. Mark             | 109 |
|    | Exploring the Associating Rules of Prescription and Syndrome on Radix Astragali with Text Mining Shuyu Sun, Changyuan Yu, Guang Zheng, Miao Jiang, Minzhi Wang, Xiaojuan He, Aiping Lu     | 115 |
|    | Research on Inter Hospital and Ambulance Data Transmission Using LT-Coding over VANET Wei Liu, Yuliang Yang, Mengyu Zhu  | 119 |
|    | HL7 and the Transmission of Dynamic Signal in HL7 Standard<br>Xing Wang, Xiaoying Tang, Licheng Yin, Weifeng Liu   | 124 |
| SP | 1-2 Information and Communication Technology in Medical II   |     |
|    | Customized Evaluation Software for Clinical Trials: an Example on Pulmonary Function Test with<br>Electrical Impedance Tomography<br>Zhanqi Zhao, Knut Möller, Barbara Vogt, Inéz Frerichs | 128 |
|    | A Novel Approach for Colon Biopsy Image Segmentation<br>Saima Rathore, Mutawarra Hussain, Asifullah Khan   | 134 |
|    | Synchronic Analysis in a Neural Network Based on FitzHugh-Nagumo Equations with Time Delay Shurui Qin, Yuanhua Qiao, Jun Miao, Lijuan Duan   | 140 |
|    | Design of Electronic Blood Pressure Monitoring System Based on Mobile Telemedicine System<br>Jinling Zhang, Yue Liu, Jiabao Wen  | 145 |
|    | Barker Coded Excitation Using LFM Carrier for Improving Axial Resolution in Ultrasound Imaging Juan Fu, Gang Wei, Qinghua Huang  | 150 |
|    | An ECG 7-Lead Monitoring System Designing Based on Lower-Power<br>Jinling Zhang, Lei Shu, Yachi Wang, Zhichen Zhang  | 154 |

### SP2-2 Image Cognitive Neuroscience

| - |   |     |
|---|---|-----|
|   | Decreased Brain Activation Along with Increased Inter-stimulus Interval in the Posner Task<br>Yujie Li, Chunlin Li, Yuya Kawata, Jinglong Wu, Tomoko Kurata, Seiichiro Ohno, Susumu Kanazawa,<br>Koji Abe | 160 |
|   | Radiation Enhance Biological Activity of Recombinant Adeno-associated Virus Against Human Glioma through Down-regulating ATM Zuye Yang, Yunjia Zhang, Zhaoying Fu, Hailong Wang, Hong Ma                  | 165 |
|   | The Neural Activation in Human Brain for Object Perception in Wide Field<br>Jiayue Guo, Bin Wang, Jinglong Wu, Seiichiro Ohno, Susumu Kanazawa  | 169 |
|   | Different Neural Response in Human Ventral Visual Cortex for the Face and House in a Wide Visual Field  | 174 |
|   | Bin Wang, Tianyi Yan, Jiajia Yang, Jinglong Wu, Seiichiro Ohno, Susumu Kanazawa   |     |
|   | Morphology of Chinese and Japanese Kanji Processing in Chinese-Japanese Bilinguals: an fMRI Study Zhenglong Lin, Jinglong Wu, Xiujun Li, Qiyong Guo   | 180 |
|   | Automatic Eye-Blink Artifact Removal Method Based on EMD-CCA<br>Mumtaz Hussain Soomro, Nasreen Badruddin, Mohd Zuki Yusoff, Munsif Ali Jatoi  | 186 |
| S | A1-3 Brain Computer   |     |
|   | Asynchronous Brain–Computer Interface with Foot Motor Imagery<br>Meng Sun, Hiroyuki Akiyoshi, Tomohiko Igasaki, Nobuki Murayama   | 191 |
|   | Looking at Beautiesanother Possibility to Brain Computer Interface?<br>Xue Rui, Yan Li, Deyu Li   | 197 |
|   | A New SSVEP Brain-computer Interface Based on a Head Up Display<br>Luzheng Bi, Yun Li, Ke Jie, Xin'an Fan   | 201 |
|   | A Dry Electrode Based Headband Voice Brain-Computer Interface Device<br>Yaqi Yan, Nan Mu, Difei Duan, Linguo Dong, Xiaoying Tang, Tianyi Yan  | 205 |
|   | A SSVEP Brain-computer Interface with the Hybrid Stimuli of SSVEP and P300<br>Luzheng Bi, Ke Jie, Xin'an Fan, Yun Li  | 211 |
|   | Fast Neutron Irradiation Induces Regionally Specific Activation of TRAIL/DR5 Pathway in Rat Brain<br>Ling Rao, Hailong Wang, Zhengang Shan, Jieying Zheng, Xiao Wang, Hong Ma                             | 215 |
| S | P1-3 Biosensors and bio-analytics I   |     |
|   | A Novel Alternating Magnetic Field Measuring Device for Magnetic Induction Hyperthermia<br>Jianan Wu, Dongyang Cai, Xinrong Cao, Jintian Tang   | 219 |
|   | Medical Communication Device with Compact Planar Antenna and Heterogeneous Wireless Resource for Ubiquitous Real-Time Healthcare Monitoring<br>Ke-Ren Chen, Yu-Lun Lin, Ming-Chih Yang                    | 224 |
|   | Waveguided Metallic Photonic Crystal Based Biosensor for Immunodetection<br>Ruifen Tan, Xuemei Ma, Xinping Zhang, Jiang Zhang   | 228 |
|   | A Signal Acquisition and Data Processing System for LED Induced Fluorescence Detector<br>Zhiguang Zhang, Xiaoqiong Li, Xuefei Lv, Xiaoming Hu, Lina Geng, Yulin Deng                                      | 232 |
|   | The Influence of Mental Load and Physical Load on the Interventricular Synchronous Depolarization Yanjun Li, Zhi Xu, Ming Wei, Lin Zhang, Xianglin Yang, Yuhua Yao  | 238 |
|   |   |     |

| The Effect of Alpha-Synuclein Overexpression on the Process of Cellular Energy Metabolism in  |     |
|---|-----|
| Transgenic Mouse Model<br>Yanyan Zhang, Linna Guo, Chao Han, Hong Qing, Yulin Deng  | 244 |
| SP2-3 Biosensors and bio-analytics II   |     |
| Characteristics Evaluation of a Pressure Sensitive Rubber – based Tactile Sensor<br>Shuxiang Guo, Yue Gao, Jian Guo, Yuehui Ji, Yunliang Wang           | 249 |
| Aptamer Biosensors for Microorganism Detection<br>Congxiao Zhang, Xuefei Lv, Hong Qing, Lina Geng, Yulin Deng   | 254 |
| The Formation of G-quadruplex in Biologically Relevant DNA Sequences Induced by Alkaloid Run Hao, Yameng Liu, Rugang Zhong                              | 260 |
| A Novel Type of Catheter Sidewall Tactile Sensor Array for Vascular Interventional Surgery<br>Jian Guo, Shuxiang Guo, Peng Wang, Wei Wei, Yunliang Wang | 264 |
| Method of Modulation Recognition of Typical Communication Satellite Signals Based on Cyclostationary Shijing Li, Yuwen Wang                             | 268 |
| A Cytometric Dual-Bead Array for Analyzing PML-RARalpha Fusion Protein<br>Wenjun Lan, Haiyan Wang, Lei Yan, Zheli Wang, Junjie Ding                     | 274 |
| SA1-5 Rehabilitation robotics and biomechatronics   |     |
| Development of a Rehabilitative Training Robot for Both Wrists<br>Ikuo Yamamoto, Naohiro Inagawa, Kenji Hachisuka, Futoshi Wada, Akiko Hachisuka        | 280 |
| Development of Force Analysis-based Exoskeleton for the Upper Limb Rehabilitation System<br>Shuxiang Guo, Fan Zhang, Wei Wei, Jian Guo, Weimin Ge       | 285 |
| Design and Optimization of a Footpad-type Walking Rehabilitation Robot<br>Tao Qin, Lixun Zhang, Yupeng Zou, Chengying Song, Sheng Cheng                 | 290 |
| Force Control for an Astronaut Rehabilitative Training Robot in Bench Press Mode<br>Yupeng Zou, Lixun Zhang, Tao Qin, Yingbin Liang                     | 296 |
| A Novel VR-based Upper Limb Rehabilitation Robot System<br>Wei Wei, Shuxiang Guo, Wu Zhang, Jian Guo, Yunliang Wang                                     | 302 |
| The Design and Development of a Low Limbs Rehabilitation Exoskeleton Suit<br>Xianggang Zhang, Zenghe Xiang, Qingxia Lin, Qifang Zhou                    | 307 |
| SP1-5 Biomedical Robotics and Biomechatroincs I   |     |
| A Mechanical Perforation Procedure for Embryo Biopsy<br>Issam M. Bahadur, James K. Mills  | 313 |
| Development of a Real Catheter-based Force Feedback System<br>Thomas Dauteuille, Shuxiang Guo, Nan Xiao   | 319 |
| Coordinated Control of a Novel Multi-arm Robot for Maxillofacial Surgery<br>Xingguang Duan, Meng Li, Xiangzhan Kong, Yonggui Wang, Chang Li             | 323 |
| sEMG Signal and Hill Model based Continuous Prediction for Hand Grasping Motion<br>Muye Pang, Shuxiang Guo, Zhibin Song, Songyuan Zhang                 | 329 |
| Development of a Novel Joint Protection Module for Minimally Invasive Surgery Robot<br>Ning Lv, Jinhua Li, He Su, Kang Kong, Jinxing Qu                 | 334 |

|                                       | A Matrix Method for Human Hand Gesture Description<br>Xiancan Liu, Qiang Zhan   | 340 |
|---------------------------------------|---|-----|
| SP2                                   | 2-5 Biomedical Robotics and Biomechatroincs II  |     |
|                                       | Project-oriented Studying to Support Medical Engineering Education<br>Sabine Krueger-Ziolek, Zhanqi Zhao, Knut Moeller  | 345 |
|                                       | A Preliminary Study of Dynein-driven Ciliary Motility: A Computational Model<br>Duanduan Chen, Jun Ren, Yuqian Mei, Yiannis Ventikos  | 351 |
|                                       | Design of a Novel Force-Reflecting Haptic Device for Minimally Invasive Surgery Robot<br>Jinxing Qu, Jinhua Li, Linan Zhang, Ke Liang, Ning Lv, He Su   | 357 |
|                                       | Maxillofacial Surgical Robotic Manipulator Controlled By Haptic Device with Force Feedback<br>Amjad Ali Syed, Xingguang Duan, Xiangzhan Kong, Meng Li, Yonggui Wang, Qiang Huang                | 363 |
|                                       | Kinematic Calibration of 6-UPS Surgical Parallel Robot<br>Weidong Wang, Litao Zhang, Junlin Ma  | 369 |
|                                       | IPMC Actuator-based a Movable Robotic Venus Flytrap<br>Liwei Shi, Yanlin He, Shuxiang Guo, Hiroki Kudo, Maoxun Li, Kinji Asaka  | 375 |
| MA                                    | 1-1 Clinical technology for neurology   |     |
|                                       | Endovascular Treatment of Isolated Transverse Sigmoid Sinus Dural Arteriovenous Fistula Using Onyx<br>Liquid Embolic System<br>Masahiko Kawanishi, Nobuyuki Kawai, Takashi Tamiya, Shuxiang Guo | 379 |
|                                       | Experimental study of Remote Angiography Using Vascular Interventional Robot<br>Wangsheng Lu, Wuyi Xu, Zengmin Tian, Da Liu, Depeng Zhao, Shuxiang Guo, Baofeng Gao, Daming<br>Wang             | 383 |
|                                       | Relativity Analysis between Resting-State fMRI Signal and Tumorous Possibility of Brain Tissues<br>Xue Wang, Weibei Dou, Yinyan Wang, Tao Jiang, Jean-Marc Constans                             | 388 |
|                                       | Remote Catheterization Using a New Robotic Catheter Manipulating System<br>Xu Ma, Shuxiang Guo, Nan Xiao, Baofeng Gao, Jin Guo, Takashi Tamiya, Masahiko Kawanishi                              | 394 |
|                                       | Effects of Mechanical Stimulation on TGF-β1 and bFGF Expression of Scleral Fibroblasts after Posterior<br>Sclera Reinforcement<br><i>Guohui Wang, Shuang Hao, Aijun Deng</i>                    | 399 |
|                                       | Determination Human Brain Tumor Marker Gene Carbonic Anhydrase 9 (CA9) Gene Expression in<br>Different type of Brain Tumor Cells<br>Harun M. Said   | 403 |
| MP1-1 Biomedical Image Processing III |   |     |
|                                       | CT Image Denoising Based on Sparse Representation Using Global Dictionary<br>Fei Yu, Yang Chen, Limin Luo   | 408 |
|                                       | The Improvement of the Tooth-marked Recognition Method on the Tongue Images<br>Huanhuan Li, Xinfeng Zhang, Guangqin Hu, Yanling Sun   | 412 |
|                                       | Visualization and Real-time Tracking of Bone Drill by Electromagnetic Position Sensors<br>Litao Zhang, Weidong Wang, Dongmei Wu, Zhijiang Du  | 416 |
|                                       | Study on Digital Acquisition Method of Infantile Finger Veinlet Image Kuixing Zhang, Mei Jiang  | 421 |

|                                 | The Registration of 2D/3D Images in Robot-assisted Cervical Disc Replacement Surgery<br>Junlin Ma, Dongmei Wu   | 425 |
|---------------------------------|---|-----|
|                                 | A Medical Image Segmentation Based on Global Variational Level Set<br>Yanming Pan, Kejian Feng, Dan Yang, Yukuan Feng, Yanwei Wang  | 429 |
| MP                              | 2-1 Visual, auditory, tactile perception and interaction II   |     |
|                                 | Research on the Amplitude Mismatch in Dual-microphone Device<br>Yousheng Chen, Qin Gong, Tao Zhang  | 433 |
|                                 | Age-Related Differences in Pointing Movements in Restricted Visual Tasks and Their Design Implication<br>Liancun Zhang, Jiajia Yang, Yoshinobu Inai, Qiang Huang, Jinglong Wu   | 439 |
|                                 | Differential Sensitivity for House Pictographs and Chinese Logographs in the "Parahippocampal Place<br>Area"  | 444 |
|                                 | Geqi Qi, Bin Wang, Satoshi Takahashi, Seiichiro Ohno, Susumu Kanazawa, Jinglong Wu  |     |
|                                 | SEMG-based Posture Recognition of Elbow Flexion and Extension<br>Zhibin Song, Zhenyu Wang, Shuxiang Guo   | 448 |
|                                 | A Novel Flash Visual Evoked Potential Stimulator Utilizing Linear Frequency Modulation<br>Saili Peng, Yi Xin, Qin Li, Xizhong Liu   | 453 |
|                                 | Lung Nodule Detection Us ing Multi-Resolution Analysis<br>Mickias Assefa, Ibrahima Faye, Aamir Saeed Malik, Muhammad Shoaib   | 457 |
| MA                              | 1-2 Imaging and pathologic diagnosis  |     |
|                                 | Improved Interaction Methods for Medical Visualization with Floating Images<br>Sandor Markon, Satoshi Maekawa, Ahmet Onat, Zhibo Zhao, Hideaki Miyake   | 462 |
|                                 | Multi-Slice CT Angiography in Acute Suspected Mesenteric Ischemia: Role in Diagnosis and Differential Diagnosis   | 467 |
|                                 | Xueyuan Cao, Jing Jiang, Jingyu Wang, Jian Suo, Jing Wang   |     |
|                                 | Correlative Study of MR Diffusion Weighted Imaging with Background Body Signal Suppression<br>Features and Different Pathological Types in Lung Carcinoma and Pulmonary Tuberculosis<br>Yue Guan, Xihe Sun, Peng Dong, Guanghui Chang, Yanming Ge, Yanqi Xu, Bin Wang | 471 |
|                                 | The Optimized Filter Width Using in Post-processing ESWAN Data of Prostate<br>Xizhen Wang, Zhen Shen, Peng Dong, Xihe Sun, Shanshan Gao, Guanghui Chang, Yanming Ge, Bin<br>Wang  | 475 |
|                                 | Subperitoneal Space of the Mesentery Involvement on Abdominal Computed Tomography and Their Clinical Significance in Acute Pancreatitis Peng Dong, Qimin Gao, Xizhen Wang, Jin Li, Xuehong Ju, Bin Wang   | 479 |
|                                 | Methodology for Determine the Moment of Disconnection of Patients of the Mechanical Ventilation Using<br>Discrete Wavelet Transform<br>H. González, H. Acevedo, C. Arizmendi, B.F. Giraldo  | 483 |
| MP1-2 Social medicine and demen |   |     |
|                                 | Vitamin C and N-Acetyl-L-cysteine Prevent Ethanol Induced Cultured Cerebellar Granule Neurons<br>Apoptosis Through Nuclear Factor-kappa B Pathway<br>Yang Su, Jian Mao, Runhong Lei, Rui Wang, Fankai Lin, Hong Qing, Yulin Deng, Hong Ma                             | 487 |

|     | Fragmentation Pattern of Glycated Peptides Derived from D-glucose by Tandem Mass Spectrometry<br>Rui Su, Yahui Liu, Yun Wang, Yongqian Zhang, Qing Hong, Yulin Deng                             | 493 |
|-----|---|-----|
|     | Screening Human Epidermal Growth Factor Receptor-2 Inhibitors From Natural Products<br>Xiujie Liu, Shaohua Jia, Rongji Dai, Yulin Deng, Fang Lv   | 497 |
|     | Immobilization of BSA on The Polymethacrylic Acid<br>Fang Lv, Xiujie Liu, Kaiyue Chi, Rongji Dai, Yulin Deng  | 501 |
|     | The Effects of Granulosa Cell Apoptosis on the Developmental Competence of Bovine Oocytes: A Study Using the Well-in-well Culture System Weiguo Feng, Guohui Wang, Zhifang Pan, Chune Ren       | 504 |
|     | Differential Expression of Semicrabazide-sensitive Amine Oxidase (SSAO) in Human Umbilical Arterial<br>Tissue, E.coli BL21, HEK and HUAEC<br>Kaleem Ullah, Amir Rasool, Bingjie Xie, Yulin Deng | 508 |
| MP2 | 2-2 Nano-techniques and Matherials in Medicine  |     |
|     | Design and Analysis of a Low Actuation Voltage Electrowetting-on-Dielectric Device<br>M. F. Samad, A. Z. Kouzani, M. Samad  | 513 |
|     | Image Processing-based Measurement of Volume for Droplets in the Microfluidic System<br>Wei Wei, Shuxiang Guo, Fang Wu, Yuehui Ji, Yunliang Wang  | 518 |
|     | Study of PNIPAAm-PEG Thermo-sensitive Copolymer Micelle and Application as Drug Carrier for Icariin Xiaoyan Xu, Taotao Liu, Enke Feng, Wen Zhang, Yan Li, Jun Zheng                             | 523 |
|     | A Theoretical Ultrafiltration Model for Albumin-Bound Toxin Dialysis<br>Yingying Pei, Yize Sun, Yang Xu, Gang Zhao, Dayong Gao, Weiping Ding  | 528 |
|     | An Underwater Microrobot with Six Legs Using ICPF Actuators<br>Shuxiang Guo, Fu Wan, Wei Wei, Jian Guo, Yunliang Wang   | 532 |
|     | Different Protein Profile in Amniotic Fluid with Nervous System Malformations by SELDI-TOF-MS<br>Technology<br>Yanling Zheng, Cun Liu   | 536 |
| MA  | 1-3 Cognitive Neuroscience and Technology   |     |
|     | Electromagnetic Energy Harvesting in a Head-mountable DBS Device Using a Circular PIFA Md Kamal Hosain, Abbas Z. Kouzani  | 541 |
|     | Ensemble Averaging Subspace-based Approach for ERP Extraction<br>Nidal Kamel, Aamir Malik, Munsif Ali Jatoi   | 547 |
|     | Design and Realization of Inspection System for Bone-Conduction Hearing Aid<br>Ruijing Li, Bo Zhong, Xiaomei Chen, Longbiao He, Huan Xu   | 551 |
|     | Food Stamps: A Reminiscence Therapy Tablet Game for Chinese Seniors<br>Kaige Chang, Ning An, Jian Qi, Rongcan Li, Sue Levkoff, Hongtu Chen, Peng Li   | 556 |
|     | Distractors Processing Modulate the Onset of Inhibition of Return in Discrimination Tasks<br>Xingjuan Liu, Ming Zhang, Jianzhong Zhou   | 562 |
|     | The Interactive Effect between Inhibition of Return and Flanker Interference<br>Jianzhong Zhou, Xingjuan Liu, Yufei Shi   | 567 |

#### MP1-3 Biomedical Robotics and Biomechatroincs III

|   | A Concept for Modelling Linear Lung Compliances Using a Mechanical Artificially Ventilated Simulator<br>Christian Knöbel, Gunter Ketterer, Knut Möller   | 571 |
|---|--|-----|
|   | A VR-based Training System for Vascular Interventional Surgery<br>Jin Guo, Shuxiang Guo, Nan Xiao, Thomas Dauteuille   | 575 |
|   | Development of a New Kind of Magnetic Field Model for Wireless Microrobots<br>Jian Guo, Shuxiang Guo, Xiang Wei, Wei Wei, Yunliang Wang  | 580 |
|   | Lattice Boltzmann Study of Micro Branch Array of Crossflow Filtration for Fluid Partitioning<br>Shiyu Cheng, Yuanqing Xu, Xiaoying Tang, Rui Yang  | 586 |
|   | Research on Soft Tissue Deformation Based on Haptic Feedback<br>Hong Liang, Jin Li, Yuan Feng, Yulin Deng  | 590 |
|   | Mechanical Design and Kinematic Analysis of a Medical Robot Assisted Maxillofacial Surgery<br>Xingguang Duan, Yonggui Wang, Xiangzhan Kong, Meng Li, Yang Yang   | 596 |
| MF  | 2-3 Robot and Application  |     |
|   | Performance Evaluation on Land of an Amphibious Spherical Mother Robot<br>Shuxiang Guo, Maoxun Li, Liwei Shi, Shilian Mao, Chunfeng Yue  | 602 |
|   | Trot Pattern Generation for Quadruped Robot Based on the ZMP Stability Margin<br>Si Zhang, Junyao Gao, Xingguang Duan, Hui Li, Zhangguo Yu, Xuechao Chen, Jing Li, Huaxin Liu, Xin<br>Li, Yi Liu, Zhe Xu | 608 |
|   | Development of a Spherical Amphibious Mother Robot<br>Shuxiang Guo, Shilian Mao, Liwei Shi, Maoxun Li, Chunfeng Yue  | 614 |
|   | The Research of Hydraulic Quadruped Bionic Robot Design<br>Junyao Gao, Xingguang Duan, Qiang Huang, Huaxin Liu, Zhe Xu, Yi Liu, Xin Li, Wentao Sun   | 620 |
|   | Mechanical Design of the Legs of Hydraulically Actuated Quadruped Bionic Robot<br>Xin Li, Junyao Gao, Xingguang Duan, Qiang Huang, Hui Li, Huaxin Liu, Wenxue Zhao, Zhe Xu, Yi Liu,<br>Wentao Sun        | 626 |
|   | A Force Acquisition Method in A Catheter Navigation System<br>Yuan Wang, Kangqi Hu, Nan Xiao, Shuxiang Guo   | 633 |
| MA1-5 Electroencephalogram (EEG), Event-related potentials (ERPs) |  |     |
|   | Selection of the Control Channels in a Method for Rapid Determination of Channel Positions in High-Density EEG Studies <i>Ping He</i>  | 638 |
|   | Denoising and Rhythms Extraction of EEG under +Gz Acceleration Based on Wavelet Packet Transform<br>Yifeng Li, Tao Zhang, Lue Deng, Bei Wang, Masatoshi Nakamura   | 642 |
|   | EEG Mean Power and Complexity Analysis during Complex Mental Task<br>Hafeez Ullah Amin, Aamir Saeed Malik, Nasreen Badruddin, Weng-Tink Chooi  | 648 |
|   | Epileptic Seizure Detection Using the Singular Values of EEG Signals<br>Arslan Shahid, Nidal Kamel, Aamir Saeed Malik, Munsif Ali Jatoi  | 652 |
|   |  |     |

| Effect of Cue-target Interval on Audiovisual Stimuli Processing in Endogenous Spatial Attention: An Event-related Potentials Study<br>Xiaoyu Tang, Chunlin Li, Qi Li, Yulin Gao, Weiping Yang, Jingjing Yang, Ishikawa Soushirou, Satoshi<br>Takahashi, Jinglong Wu | 656       |
|---|-----------|
| Automatic Identification o f Diffuse and Localized Activity for Topographical Distribution o f EEG Rhyth<br>Based on Suitable Reference Selection with Pre-judgments<br>Bei Wang, Xingyu Wang, Akio Ikeda, Takashi Nagamine, Hiroshi Shibasaki, Masatoshi Nakamura  | im<br>662 |
| MP1-5 Complex Bioinformatics and Systems Biology  |           |
| Bringing Model Based Ventilation Therapy to the Bedside<br>Thu Nguyen, Thomas Lehmann, Jörn Kretschmer, Knut Möller   | 666       |
| An Algorithm for Detecting Fixed Points of Boolean Network<br>Yi Ming Zou   | 670       |
| Differential Proteome of the Striatum from A30P α-Synuclein Transgenic Mouse Model of Parkinson's Disease<br>Linna Guo, Jinyan Duan, Yan Xiong, Hong Qing, Yulin Deng   | 674       |
| Predictive-Retrospective Proportional Glycemic Control forType 1 Diabetes Mellitus<br>Chaofeng Yan, Youqing Wang, Xifa Sun  | 678       |
| Protein Profiling of Striatum and Substantia Nigra from Hemiparkinsonian Rat Model by<br>Offgel-HPLC-MS/MS<br>Yan Xiong, Ming Ke, Hong Qing, Yujuan Li, Yulin Deng  | 684       |
| Existence and Uniqueness of Weak Solutions for a Coupled Mathematical Model of Tumor Invasive<br>Process<br>Li Zhang, Shutang Liu   | 688       |
| MP2-5 Technology in Rehabilitation  |           |
| Development of a Human Upper Limb-like Robot for Master-slave Rehabilitation<br>Shuxiang Guo, Songyuan Zhang, Zhibin Song, Muye Pang  | 693       |
| Gait Analysis via a High-Resolution Triaxial Acceleration Sensor based on ZigBee Technology<br>Tian Lan, Xiaoqiong Li   | 697       |
| A sEMG-based MP3 Player Control System<br>Mengzhe Huang, Shengpei Wang, Hui Yang, Shuyuan Xiao, Bei Wang  | 703       |
| A P300 Brain-computer Interface for Controlling a Mobile Robot by Issuing a Motion Command Xin'an Fan, Luzheng Bi, Yun Li, Ke Jie, Hongsheng Ding   | 707       |
| The Study on Feature Selection Strategy in EMG Signal Recognition<br>Zhiguo Yan, Zekun Liu  | 711       |
| The Joint Application of Rough Set-Based Feature Reduction and Information Fusion in Motion Recognition Zhiguo Yan, Zekun Liu   | 717       |