2021 IEEE International Conference on Medical Imaging Physics and Engineering (ICMIPE 2021)

Hefei, China
13 – 14 November 2021

IEEE Catalog Number: CFP2173U-POD
ISBN: 978-1-6654-2609-1

Copyright © 2021 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number: CFP2173U-POD
ISBN (Print-On-Demand): 978-1-6654-2609-1
ISBN (Online): 978-1-6654-2608-4

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

Table of Contents

2021 International Conference on Medical Imaging Physics and Engineering (ICMIPE)

Reconstruction of 3D CT from A Single X-ray Projection View Using CVAE-GAN.....1

Bo Liu * (Image Processing Center Beihang University Beijing, China), Fugen Zhou (Image Processing Center Beihang University Beijing, China), Ling Jiang (Image Processing Center Beihang University Beijing, China), Xiangzhi Bai (Image Processing Center Beihang University Beijing, China), Ran Wei (Chinese Cancer Center Chinese Academy of Medical Sciences Beijing, China), Mengxi Zhang (Image Processing Center Beihang University Beijing, China)

A Cascaded 3D Neural Network For Liver Tumor Segmentation.....7

Xueyan Li * (State Key Laboratory of Integrated Optoelectronics, College of Electronic Science and Engineering, Jilin University, Changchun, China), Yunhai Qiu (State Key Laboratory of Integrated Optoelectronics, College of Electronic Science and Engineering, Jilin University, Changchun, China), Yun Pei (State Key Laboratory of Integrated Optoelectronics, College of Electronic Science and Engineering, Jilin University, Changchun, China), Xiuying Li (College of Electronic Science and Engineering, Jilin University, Changchun, China), Shuxu Guo (State Key Laboratory of Integrated Optoelectronics, College of Electronic Science and Engineering, Jilin University, Changchun, China)

A Geometry Information Enhanced Unet for Tumor Segmentation.....14

Kehong Yuan * (Department of Biopharmaceutical and Health Engineering, International Graduate School, Tsinghua University, Shenzhen, China), Haonan Hu (Department of Biopharmaceutical and Health Engineering, International Graduate School, Tsinghua University, Shenzhen, China), Jirang Sun (Sanbo Brain Hospital, Capital Medical University, Beijing, China), Qianxi Yang (Department of Biopharmaceutical and Health Engineering, International Graduate School, Tsinghua University, Shenzhen, China), Xiangwei Peng (Department of Biopharmaceutical and Health Engineering, International Graduate School, Tsinghua University, Shenzhen, China), Gong Li (Radiotherapy Department, Beijing Tsinghua Changgung Hospital, School of Clinical Medicine, Tsinghua University, Beijing, China), Xing Wang (Radiotherapy Department, Beijing Tsinghua Changgung Hospital, School of Clinical Medicine, Tsinghua University, Beijing, China), Guangxin Li (Radiotherapy Department, Beijing Tsinghua Changgung Hospital, School of Clinical Medicine, Tsinghua University, Beijing, China)

Quantification of pectinate muscles inside left atrial appendage from CT images using fractal analysis.....19

Yanjie Zhu * (Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences Shenzhen, China), Yijia Zheng (Department of Biomedical Engineering Chongqing University of Technology Chongqing, China), Shengping Liu (Department of Biomedical Engineering Chongqing University of Technology Chongqing, China), Taihui Yu (Sun Yat-sen Memorial Hospital, Sun Yat-sen University Guangzhou, China), Dong Liang (Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences Shenzhen, China), Haifeng Wang (Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences Shenzhen,

China), Junya Zhao (The Eighth Affiliated Hospital, Sun Yat-sen University Shenzhen, China), Xi Xu (Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences Shenzhen, China)

CT/ cone-beam CT image characteristics of ameloblastoma, odontogenic keratocyst and dentigerous cyst associated with the impacted mandibular third molar.....24

Gang Li * (Peking University School and Hospital of Stomatology, China), Han Du (Peking University School and Hospital of Stomatology, China), Shuo Wang (Peking University School and Hospital of Stomatology, China), Min Li (Peking University School and Hospital of Stomatology, China), Dong-qing Zhang (Harbin Institute of Technology Affiliated Hospital, China)

CT Metal Artifact Correction Assisted by the Deep Learning-based Metal Segmentation on the Projection Domain.....29

Huailing Zhang *(School of Biomedical Engineering, Guangdong Medical University, Dongguan, China), Yulin Zhu (School of Biomedical Engineering, Guangdong Medical University, Dongguan, China), Xiaokun liang (Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China), Lei Deng (Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China), Chenglong Zhang (Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China), Xuanru Zhou (Department of Biomedical Engineering, Southern Medical University, Duangzhou, China), Yaoqin Xie (Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China)

Green Fluorescent Protein and Phase Contrast Image Fusion via Dual Attention Residual Network.....39

Yu Liu * (Department of Biomedical Engineering Hefei University of Technology Hefei 230009, China), Wei Tang (Department of Biomedical Engineering Hefei University of Technology Hefei 230009, China), Lei Wang (Department of Biomedical Engineering Hefei University of Technology Hefei 230009, China)

Automatic cone-beam computed tomography Segmentation with small samples based on Generative Adversarial Networks and semantic segmentation.....45

Gang Li* (Peking University Stomatological Hospital, China), HuiFang Yang (Peking University Stomatological Hospital, China)

A Novel Landmark Detection Method for Cephalometric Measurement.....49

Zhang Yi * (Machine Intelligence Laboratory, College of Computer Science, Sichuan University, Chengdu, P. R. China), Qiang Zhang (Machine Intelligence Laboratory, College of Computer Science, Sichuan University, Chengdu, P. R. China), Jixiang Guo (Machine Intelligence Laboratory, College of Computer Science, Sichuan University, Chengdu, P. R. China), Tao He (Machine Intelligence Laboratory, College of Computer Science, Sichuan University Chengdu, P. R. China), Jie Yao (College of Stomatology, Xi'an Jiaotong University , Xi'an, P. R. China), Wei Tang (Department of Oral and Maxillofacial Surgery, West China Hospital of Stomatology Chengdu, P. R. China)

A Digital Distributed Spectrometer for Dual-nuclei Simultaneous MRI.....59

ChaoYang Liu * (State Key Laboratory of Magnetic Resonance and Atomic and Molecular Physics, Innovation Academy for Precision Measurement Science and Technology, Chinese Academy of Sciences, Wuhan, Hubei, China; University of Chinese Academy of Sciences, Beijing, China), Chunsheng Yang (State Key Laboratory of Magnetic Resonance and Atomic and Molecular Physics, Innovation Academy for Precision Measurement Science and Technology, Chinese Academy of Sciences, Wuhan, Hubei, China; University of Chinese Academy of Sciences, Beijing, China), Zhi Zhang (State Key Laboratory of Magnetic Resonance and Atomic and Molecular Physics, Innovation Academy for Precision Measurement Science and Technology, Chinese Academy of Sciences, Wuhan, Hubei, China; University of Chinese Academy of Sciences, Beijing, China), JunFei Chen (State Key Laboratory of Magnetic Resonance and Atomic and Molecular Physics, Innovation Academy for Precision Measurement Science and Technology, Chinese Academy of Sciences, Wuhan, Hubei, China), Fang Chen (State Key Laboratory of Magnetic Resonance and Atomic and Molecular Physics, Innovation Academy for Precision Measurement Science and Technology, Chinese Academy of Sciences, Wuhan, Hubei, China; University of Chinese Academy of Sciences, Beijing, China), Jiwen Feng (State Key Laboratory of Magnetic Resonance and Atomic and Molecular Physics, Innovation Academy for Precision Measurement Science and Technology, Chinese Academy of Sciences, Wuhan, Hubei, China; University of Chinese Academy of Sciences, Beijing, China)

Odontogenic keratocyst involving zygoma: Cone-beam and Multislice spiral computed tomography aided the precise definition and appropriate treatment for the rare location.....65

Hu Wang * (Department of Oral Radiology, West China Hospital of Stomatology, State Key Laboratory of Oral Disease & National Clinical Research Center for Oral Disease, Sichuan University, Chengdu, PR China), Li Liu (Department of Oral Radiology, West China Hospital of Stomatology, State Key Laboratory of Oral Disease & National Clinical Research Center for Oral Disease, Sichuan University, Chengdu, PR China), Junichiro Sakamoto (Department of Oral and Maxillofacial Radiology, Graduate School, Tokyo Medical and Dental University, Tokyo, Japan), Tohru Kurabayashi (Department of Oral and Maxillofacial Radiology, Graduate School, Tokyo Medical and Dental University, Tokyo, Japan), Kaili Wang (Department of Oral Radiology, West China Hospital of Stomatology, State Key Laboratory of Oral Disease & National Clinical Research Center for Oral Disease, Sichuan University, Chengdu, PR China)

An Automatic Method for Brain Tumors Segmentation Based on Deep Convolutional Neural Network.....71

HuiLin * (School of Physics Hefei University of Technology Hefei, China), Benjian Zhang (School of Physics Hefei University of Technology Hefei, China), Xin Guo (School of Physics Hefei University of Technology Hefei, China), Dong Guo (School of Computer and Information Anhui Province Key Laboratory of Af ective Computing and Advanced Intelligent Machine Hefei, China), Jia Jing (School of Physics Hefei University of Technology Hefei, China), Huiyuan Luo (School of Physics Hefei University of Technology Hefei, China), Yumeng Zhao (School of Physics Hefei University of Technology Hefei, China), Min Hu (School of Computer and Information Hefei University of Technology Hefei, China), Fuji Ren (Graduate School of Advanced Technology and Science University of Tokushima Tokushima,

Japan)

Numerical simulation of a method to reduce high cranial pressure in high intensity focused ultrasound for transcranial brain therapy.....79

Jinxu Tao * (University of Science and Technology of China, China), Jiaqi Wang (University of Science and Technology of China, China), Xinyu Gu (University of Science and Technology of China, China)

A preliminary study on multi-energy CT reconstruction via weighted tensor nuclear norm combining image sparsity.....85

Bin Yan * (Information Engineering University, Zhengzhou, China), Ailong Cai (Information Engineering University, Zhengzhou, China), Xinyi Zhong (Information Engineering University, Zhengzhou, China), Xiaohuan Yu (Information Engineering University, Zhengzhou, China), Yizhong Wang (Information Engineering University, Zhengzhou, China), Lei Li (Information Engineering University, Zhengzhou, China)

Plug-and-play Framelet Tensor Prior for Spectral Computed Tomography Reconstruction.....90

Bin Yan * (Information Engineering University, Zhengzhou, China), Xiaohuan Yu (Information Engineering University, Zhengzhou, China), Xinyi Zhong (Information Engineering University, Zhengzhou, China), Zhizhong Zheng (Information Engineering University, Zhengzhou, China), Ailong Cai (Information Engineering University, Zhengzhou, China), Lei Li (Information Engineering University, Zhengzhou, China)

Radiographic evaluation on stafne bone defects using dental cone beam computed tomography.....95

Jiayin Ren * (State Key Laboratory of Oral Diseases, West China Hospital of Stomatologydept. Department of Oral Radiology, West China School of Stomatology， Sichuan University Chengdu, China), Bei Tang (State Key Laboratory of Oral Diseases, West China Hospital of Stomatologydept. Department of Oral Radiology, West China School of Stomatology，Sichuan University Chengdu, China), Kaili Wang (State Key Laboratory of Oral Diseases, West China Hospital of Stomatologydept. Department of Oral Radiology, West China School of Stomatology，Sichuan University Chengdu, China), Hu Wang (State Key Laboratory of Oral Diseases, West China Hospital of Stomatologydept. Department of Oral Radiology, West China School of Stomatology，Sichuan University Chengdu, China)

Image domain material decomposition algorithm by plug-and-play framework for dual-energy CT sparse-view scanning.....101

Bin Yan * (Information Engineering University Zhengzhou, China), Yizhong Wang (Information Engineering University, Zhengzhou, China), Ningning Liang (Information Engineering University, Zhengzhou, China), Ailong Cai (Information Engineering University Zhengzhou, China), Lei Li (Information Engineering University, Zhengzhou, China), Minghua Sun (Information Engineering University, Zhengzhou, China)

Preliminary studies on Dual-energy CT image super-resolution based on dual-dictionary learning.....105

Lei Li * (Information Engineering University, Zhengzhou, China), Xinyi Zhong (Information Engineering University, Zhengzhou, China), Ailong Cai (Information Engineering University, Zhengzhou, China), Ningning Liang (Information Engineering University, Zhengzhou, China),

Xiaohuan Yu (Information Engineering University, Zhengzhou, China), Bin Yan (Information Engineering University, Zhengzhou, China)

Prevalence of apical periodontitis in a Chinese subpopulation detected in cone beam CT images.....109

Bei Tang * (State Key Laboratory of Oral Diseases, National Clinical Research Center for Oral Diseases, Department of Oral Radiology, West China Hospital of Stomatology, Sichuan University, Chengdu, China), Yuanyuan Liu (State Key Laboratory of Oral Diseases, National Clinical Research Center for Oral Diseases, Department of Oral Radiology, West China Hospital of Stomatology, Sichuan University, Chengdu, China), Hu Wang (State Key Laboratory of Oral Diseases, National Clinical Research Center for Oral Diseases, Department of Oral Radiology, West China Hospital of Stomatology, Sichuan University, Chengdu, China), Li Liu (State Key Laboratory of Oral Diseases, National Clinical Research Center for Oral Diseases, Department of Oral Radiology, West China Hospital of Stomatology, Sichuan University, Chengdu, China)

Flexible X-ray Talbot-Lau grating interferometer.....116

Chao Wu * (National Synchrotron Radiation Laboratory,University of Science and Technology of China,Hefei, China), Qisi Lin (National Synchrotron Radiation Laboratory,University of Science and Technology of China,Hefei, China), Gang Liu (National Synchrotron Radiation Laboratory,University of Science and Technology of China,Hefei, China), Yangchao Tian (National Synchrotron Radiation Laboratory,University of Science and Technology of China,Hefei, China), Yalin Lu (Hefei National Laboratory for Physical Sciences at the Microscale, University of Science and Technology of China, Hefei, China)

A comparative evaluation of cone beam computed tomography and multi-slice computed tomography on the volume of tooth in-vitro.....120

Yuanyuan Liu * (State Key Laboratory of Oral Diseases, West China Hospital of Stomatologydept. Department of Oral Radiology, West China School of Stomatology，Sichuan University Chengdu, China), Jiayin Ren (State Key Laboratory of Oral Diseases, West China Hospital of Stomatologydept. Department of Oral Radiology, West China School of Stomatology， Sichuan University Chengdu, China), Meng You (State Key Laboratory of Oral Diseases, West China Hospital of Stomatologydept. Department of Oral Radiology, West China School of Stomatology，Sichuan University Chengdu, China), Hu Wang (State Key Laboratory of Oral Diseases, West China Hospital of Stomatologydept. Department of Oral Radiology, West China School of Stomatology，Sichuan University Chengdu, China), Bei Tang (State Key Laboratory of Oral Diseases, West China Hospital of Stomatologydept. Department of Oral Radiology, West China School of Stomatology， Sichuan University Chengdu, China)

A Preliminary Study on Unsupervised Low-DoseCT Denoising Based on Bayesian Neural Network.....125

Jie Guo * (Information Engineering University, Zhengzhou, China), Ailong Cai (Information Engineering University, Zhengzhou,China), Xiaohuan Yu (Information Engineering University, Zhengzhou, China), Yizhong Wang (Information Engineering University, Zhengzhou, China), Libin Hou (Information Engineering University, Zhengzhou, China), Bin Yan (Information Engineering University, Zhengzhou, China)

The Glymphatic System Activity and Cognitive Declines in Healthy Old Adults.....129

Bensheng Qiu * (Center for Biomedical Imaging, University of Science and Technology of China, Hefei, China), Jean de Dieu Uwisengeyimana (Center for Biomedical Imaging, University of Science and Technology of China, Hefei, China), Nguchu Benedictor Alexander (Center for Biomedical Imaging, University of Science and Technology of China, Hefei, China), Wang Yaming (Center for Biomedical Imaging, University of Science and Technology of China, Hefei, China), Zhang Du (Center for Biomedical Imaging, University of Science and Technology of China, Hefei, China), Yanpeng Liu (Center for Biomedical Imaging, University of Science and Technology of China, Hefei, China), Jiang Zhoufan (Center for Biomedical Imaging, University of Science and Technology of China, Hefei, China), Xiaoxiao Wang (Center for Biomedical Imaging, University of Science and Technology of China, Hefei, China)

Segmentation of Synapses in Fluorescent Images using U-Net++ and Gabor-based Anisotropic Diffusion.....138

Qi Zhang * (School of Communication and Information Engineering (Shanghai University) Shanghai, China),Yifei Yan (School of Communication and Information Engineering(Shanghai University) Shanghai, China), Zhen Qiu (Centre for Clinical Brain Sciences (University of Edinburgh) Edinburgh, UK)

MRI to CT synthesis using contrastive learning.....143

Lei Zhu * (Department of Engineering and Applied Physics, University of Science and Technology of China, Hefei, China), Jiangtao Wang (Department of Engineering and Applied Physics, University of Science and Technology of China, Hefei, China), Xinhong Wu (Department of Engineering and Applied Physics, University of Science and Technology of China, Hefei, China), Xiao Jiang (Department of Engineering and Applied Physics, University of Science and Technology of China, Hefei, China)

Design of Pharmacokinetic Analysis System Based on Fluorescence Detection.....N/A

Zhiyu Qian * (Nanjing University of Aeronautics and Astronautics, Nanjing,China), Yiran Li (Nanjing University of Aeronautics and Astronautics, Nanjing,China)

Optimal Pedicle Screw Path Planning from Multi-directional Projections.....148

Zhi Yang * (School of Biomedical Engineering, Capital Medical University, Beijing, China; Beijing Key Laboratory of Fundamental Research on Biomechanics in Clinical Application, Capital Medical University, Beijing, China), Yunxian Zhang (School of Biomedical Engineering, Capital Medical University, Beijing, China; Beijing Key Laboratory of Fundamental Research on Biomechanics in Clinical Application, Capital Medical University, Beijing, China), Jingwei Zhao (Spine Surgery Department, Beijing Jishuitan Hospital, Beijing, China), Dan Wang (School of Biomedical Engineering, Capital Medical University, Beijing, China; Beijing Key Laboratory of Fundamental Research on Biomechanics in Clinical Application, Capital Medical University, Beijing, China), Yumeng Zhang (School of Biomedical Engineering, Capital Medical University, Beijing, China; Beijing Key Laboratory of Fundamental Research on Biomechanics in Clinical Application, Capital Medical University, Beijing, China), Fan Peng (School of Biomedical Engineering, Capital Medical University, Beijing, China; Beijing Key Laboratory of Fundamental Research on Biomechanics in Clinical Application, Capital Medical University, Beijing, China), Shangqi Cui (School of Biomedical

Engineering, Capital Medical University, Beijing, China; Beijing Key Laboratory of Fundamental Research on Biomechanics in Clinical Application, Capital Medical University, Beijing, China), Da He (Spine Surgery Department, Beijing Jishuitan Hospital, Beijing, China), Bo Liu (Spine Surgery Department, Beijing Jishuitan Hospital, Beijing, China)

Multimodal fusion diagnosis of depression and anxiety based on face video.....152

Wanqing Xie * (College of the Mathematical Sciences. Harbin Engineering University Harbin, China; Suzhou Fanhan Information Technology Co., Ltd Suzhou, China), Chen Wang (College of the Mathematical Sciences. Harbin Engineering University, Harbin, China), Lizhong Liang (School of Computer Science and Engineering. Sun Yat-sen University Guangzhou, China; Affiliated Hospital of Guangdong Medical University. Zhanjiang, China), Xiaofeng Liu (Neurology, Beth Israel Deaconess Medical Center. Harvard Medical School Boston, MA, USA; Suzhou Fanhan Information Technology Co., Ltd Suzhou, China), Yao Lu (School of Computer Science and Engineering. Sun Yat-sen University Guangzhou China), Jihong Shen (College of the Mathematical Sciences. Harbin Engineering University, Harbin, China), Hui Luo (School of Computer Science and Engineering. Sun Yat-sen University Guangzhou, China; Affiliated Hospital of Guangdong Medical University Zhanjiang, China)

Classification of four-class motion imagination tasks based on EEG by combining EEG source imaging with convolution neural networks.....159

Zhiyu qian * (Biomedical Engineering Department, Nanjing University of Aeronautics and Astronautics Nanjing, China), Lu Zhou (Biomedical Engineering Department, Nanjing University of Aeronautics and Astronautics Nanjing, China), Qiaoqiao Zhu (Biomedical Engineering Department, Nanjing University of Aeronautics and Astronautics Nanjing, China), Biao Wu (Biomedical Engineering Department, Nanjing University of Aeronautics and Astronautics Nanjing, China), Bing Qin (Biomedical Engineering Department, Nanjing University of Aeronautics and Astronautics Nanjing, China)

Study on motion sickness based on EEG power spectrum characteristics.....163

Qiaoqiao Zhu * (Biomedical Engineering Department, Nanjing University of Aeronautics and Astronautics Nanjing, China), Bing Qin (Biomedical Engineering Department, Nanjing University of Aeronautics and Astronautics Nanjing, China), Zhiyu Qian (Biomedical Engineering Department, Nanjing University of Aeronautics and Astronautics Nanjing, China), Yang Chen (Biomedical Engineering Department, Nanjing University of Aeronautics and Astronautics Nanjing, China), Biao Wu (Biomedical Engineering Department, Nanjing University of Aeronautics and Astronautics Nanjing, China), Lu Zhou (Biomedical Engineering Department, Nanjing University of Aeronautics and Astronautics Nanjing, China)

Ultrasonic image fibrosis staging based on machine learning for chronic liver disease.....166

Zhi Yang * (College of Medical Laboratory, Dalian Medical University, Dalian, China), Yumeng Zhang (College of Medical Laboratory, Dalian Medical University, Dalian, China), Yao Zhang (College of Medical Laboratory, Dalian Medical University, Dalian, China), Shangqi Cui (College of Medical Laboratory, Dalian Medical University, Dalian, China), Fan Peng (College of Medical Laboratory, Dalian Medical University, Dalian, China), Dan Wang (College of Medical Laboratory, Dalian Medical University, Dalian, China), Yunxian Zhang (College of Medical Laboratory, Dalian Medical University, Dalian, China)

Investigation of basis material decomposition imaging noise from different spectral CT parameters.....171

Li Hang * (College of Medical Laboratory, Dalian Medical University, Dalian, China), Liping Gai (College of Medical Laboratory, Dalian Medical University, Dalian, China), Ailian Liu (College of Medical Laboratory, Dalian Medical University, Dalian, China), Jinghong Liu (College of Medical Laboratory, Dalian Medical University, Dalian, China), Fubo Sun (College of Medical Laboratory, Dalian Medical University, Dalian, China), Yuhui Liu (College of Medical Laboratory, Dalian Medical University, Dalian, China), Yanxia Chen (College of Medical Laboratory, Dalian Medical University, Dalian, China), Xiaodong Ding (College of Medical Laboratory, Dalian Medical University, Dalian, China), Li Wang (College of Medical Laboratory, Dalian Medical University, Dalian, China), Guilian Wang (College of Medical Laboratory, Dalian Medical University, Dalian, China)

Application of Deep-Learning Based Monte Carlo Denoising for Fast Radiation Treatment Dose Calculations.....178

Xie Xu * (School of Nuclear Science and Technology, University of Science and Technology of China, Hefei, China), Zhao Peng (School of Nuclear Science and Technology, University of Science and Technology of China, Hefei, China), Hong Ming Shan (Institute of Science and Technology for Brain-inspired Intelligence and MOE Frontiers Center for Brain Science, Fudan University , Shanghai 200433, China), Jie Ping Zhou (Department of Radiation Oncology, The First Affiliated Hospital, University of Science and Technology of China Hefei, China), Xi Pei (School of Nuclear Science and Technology, University of Science and Technology of China, Hefei, China), AiDong Wu (Department of Radiation Oncology, The First Affiliated Hospital, University of Science and Technology of China Hefei, China)

Design and Study of the Customized Breast Receiving Coil for Interventional MRI at 0.35T.....185

Qingyun Liu * (Centers for Biomedical Imaging, University of Science and Technology of China, Hefei, China), Huiyu Du (Centers for Biomedical Imaging, University of Science and Technology of China, Hefei, China), Qing Zhang (Centers for Biomedical Imaging, University of Science and Technology of China, Hefei, China), Yufu Zhou (Centers for Biomedical Imaging, University of Science and Technology of China, Hefei, China), Kecheng Yuan (Centers for Biomedical Imaging, University of Science and Technology of China, Hefei, China), Lier Yan (Centers for Biomedical Imaging, University of Science and Technology of China, Hefei, China)

Knee Model Construction Based on MR images Using U-Net and Conditional GAN.....191

Liang Xiao * (College of Information Science &Technology Beijing University of Chemical Technology, Beijing, China), Yan Ma (College of Information Science &Technology Beijing University of Chemical Technology, Beijing, China), Zangju Xing (College of Information Science &Technology Beijing University of Chemical Technology, Beijing, China)

SMIR: A Transformer-Based Model for MRI super-resolution reconstruction.....196

Chao Yan * (School of Computer Science and Technology, Beijing Institute of Technology, Beijing, China), Gen Shi (School of Computer Science and Technology, Beijing Institute of Technology, Beijing, China), Zhengliang Wu (School of Computer Science and Technology, Beijing Institute of Technology, Beijing, China)

Ultrafast multidimensional MRI data acquisition with genetic algorithm.....202

Fangrong Zong * (Institute of Biophysics Chinese Academy of Science, Beijing, China), Lixian Wang (State Key Laboratory of Brain and Cognitive Sciences , Institute of Biophysics Chinese Academy of Science, Beijing, China), Rong Xue (State Key Laboratory of Brain and Cognitive Sciences , Institute of Biophysics Chinese Academy of Science, Beijing, China), Dongbiao Sun (State Key Laboratory of Brain and Cognitive Sciences , Institute of Biophysics Chinese Academy of Science, Beijing, China), Zhaoyi You (School of Life Sciences, Nankai University, Tianjin, China), Yan Zhuo (State Key Laboratory of Brain and Cognitive Sciences , Institute of Biophysics Chinese Academy of Science, Beijing, China)

The Segmentation of Knee MR Image Using Nested Deep Network and Attention Mechanism.....209

Liang Xiao * (College of Information Science and Technology, Beijing University of Chemical Technology, Beijng, China), Hanzhi Zhang (College of Information Science and Technology, Beijing University of Chemical Technology, Beijng, China), Zangju Xing (College of Information Science and Technology, Beijing University of Chemical Technology, Beijng, China)

Reliable Calibration of Cone Beam CT Using Size-coding Markers.....216

Zhi Yang * (School of Biomedical Engineering, Capital Medical University, Beijing, China; Beijing Key Laboratory of Fundamental Research on Biomechanics in Clinical Application, Capital Medical University, Beijing, China), Dan Wang (School of Biomedical Engineering, Capital Medical University, Beijing, China; Beijing Key Laboratory of Fundamental Research on Biomechanics in Clinical Application, Capital Medical University, Beijing, China), Yunxian Zhang (School of Biomedical Engineering, Capital Medical University, Beijing, China; Beijing Key Laboratory of Fundamental Research on Biomechanics in Clinical Application, Capital Medical University, Beijing, China), Yumeng Zhang (School of Biomedical Engineering, Capital Medical University, Beijing, China; Beijing Key Laboratory of Fundamental Research on Biomechanics in Clinical Application, Capital Medical University, Beijing, China), Fan Peng (School of Biomedical Engineering, Capital Medical University, Beijing, China;), Shangqi Cui (School of Biomedical Engineering, Capital Medical University, Beijing, China), Da He (Spine Surgery Department, Beijing Jishuitan Hospital, Beijing, China), Bo Liu (Spine Surgery Department, Beijing Jishuitan Hospital, Beijing, China), JingWei Zhao (School of Biomedical Engineering, Capital Medical University, Beijing, China; Spine Surgery Department, Beijing Jishuitan Hospital, Beijing, China)

Cone Beam CT Series Images Rigid Registration for Temporomandibular Joint via Self-supervised Learning Network.....219

Jupeng Li * (School of Electronics and Information Engineering, Beijing Jiaotong University, Beijing, China), Shuai Wang (School of Electronics and Information Engineering, Beijing Jiaotong University, Beijing, China), Yahui Peng (School of Electronics and Information Engineering, Beijing Jiaotong University, Beijing, China), JiLing Feng (Department of Oral and Maxillofacial Radiology, Peking University Hospital of Stomatology, Beijing, China), Ruohan Ma (Department of Oral and Maxillofacial Radiology, Peking University Hospital of Stomatology, Beijing, China), Gang Li (Department of Oral and Maxillofacial Radiology, Peking University Hospital of Stomatology, Beijing, China)

An Automated Segmentation of the Temporomandibular Joint in Small Field-of-View CBCT.....224
Yahui Peng * (School of Electronic and Information Engineering, Beijing Jiaotong University, Beijing, China), Hui Yan (School of Electronic and Information Engineering, Beijing Jiaotong University, Beijing, China), Jiling Feng (School of Electronic and Information Engineering, Beijing Jiaotong University, Beijing, China), Ruohan Ma (Department of Oral and Maxillofacial Radiology, Peking University School and Hospital of Stomatology, Beijing, China), Gang Li (Department of Oral and Maxillofacial Radiology, Peking University School and Hospital of Stomatology, Beijing, China), Jupeng Li (Department of Oral and Maxillofacial Radiology, Peking University School and Hospital of Stomatology, Beijing, China)

Adaptive Sound Speed Compensation for Reflection Imaging of Ultrasound Computed Tomography.....229
Ming Yuchi * (School of Life Science and Technology, Huazhong University of Science and Technology, Wuhan, China), Jiameng Wang (School of Life Science and Technology, Huazhong University of Science and Technology, Wuhan, China), Zhaohui Liu (School of Life Science and Technology, Huazhong University of Science and Technology, Wuhan, China), Yun Wu (School of Life Science and Technology, Huazhong University of Science and Technology, Wuhan, China), Qiude Zhang (School of Life Science and Technology, Huazhong University of Science and Technology, Wuhan, China), Junjie Song (School of Life Science and Technology, Huazhong University of Science and Technology, Wuhan, China), Liang Zhou (School of Life Science and Technology, Huazhong University of Science and Technology, Wuhan, China), Mingyue Ding (School of Life Science and Technology, Huazhong University of Science and Technology, Wuhan, China), Jupeng Ni (School of Life Science and Technology, Huazhong University of Science and Technology, Wuhan, China)

Sound Speed Image Reconstruction of Ultrasound Computed Tomography Based on GPU Acceleration.....235
Ming Yuchi * (School of Life Science and Technology, Huazhong University of Science and Technology, Wuhan, Hubei, China), Xiaoyue Fang (School of Life Science and Technology, Huazhong University of Science and Technology, Wuhan, Hubei, China), Hang Yin (School of Life Science and Technology, Huazhong University of Science and Technology, Wuhan, Hubei, China), Yun Wu (School of Life Science and Technology, Huazhong University of Science and Technology, Wuhan, Hubei, China), Junjie Song (School of Life Science and Technology, Huazhong University of Science and Technology, Wuhan, Hubei, China), Liang Zhou (School of Life Science and Technology, Huazhong University of Science and Technology, Wuhan, Hubei, China), Qiude Zhang (School of Life Science and Technology, Huazhong University of Science and Technology, Wuhan, Hubei, China), Zhaohui Liu (School of Life Science and Technology, Huazhong University of Science and Technology, Wuhan, Hubei, China), Mingyue Ding (School of Life Science and Technology, Huazhong University of Science and Technology, Wuhan, Hubei, China), Jupeng Ni (Wuhan WeSee Medical Imaging Limited Company, Wuhan, Hubei, China)

Automatic IMRT Treatment Planning using Direct Patient Anatomy Registration.....241
Yidong Yang * (Department of Engineering and Applied Physics, University of Science and Technology of China, Hefei, China), Duoer Zhang (Department of Engineering and Applied

Physics, University of Science and Technology of China, Hefei, China), Zengtai Yuan (Department of Engineering and Applied Physics, University of Science and Technology of China, Hefei, China), Panpan Hu (Department of Engineering and Applied Physics, University of Science and Technology of China, Hefei, China)

Super Resolution of MR via Learning Virtual Parallel Imaging.....244

Qiegen Liu * (Department of Electronic Information Engineering, Nanchang University, Nanchang 330031, China), Cailian Yang (Department of Electronic Information Engineering, Nanchang University, Nanchang 330031, China), Xianghao Liao (Department of Electronic Information Engineering, Nanchang University, Nanchang 330031, China), Yifan Liao (School of Artificial Intelligence and Automation, Huazhong University of Science and Technology, Wuhan 430000, China), Minghui Zhang (Department of Electronic Information Engineering, Nanchang University, Nanchang 330031, China)

^{3}He polarization based ultra-low field MRI lung inspection system prototype.....249

Liangliang Hu * (School of Instrument Science and Opto-electronics Engineering, Hefei University of Technology, Hefei, China), Zongyuan Hu (School of Electrical Engineering and Automation, Hefei University of Technology, Hefei, China), Jinzhang Xu (School of Electrical Engineering and Automation, Hefei University of Technology, Hefei, China), Yu Liu (School of Electrical Engineering and Automation, Hefei University of Technology, Hefei, China), Yafeng Li (School of Nuclear Science and Technology, Lanzhou University, Lanzhou, China)