

CRITICAL REVIEWS™ IN BIOMEDICAL ENGINEERING

TABLE OF CONTENTS, VOLUME 44, 2016

Page Range of Issues – Issues 1-2: 1–152; Issue 3: 153–225; Issue 4: 227–318;
Issue 5: 319–410; Issue 6: 411–504

ISSUES 1-2

Haptic Neurorehabilitation and Virtual Reality for Upper Limb Paralysis: A Review	1
<i>L. Piggott, S. Wagner, & M. Ziat</i>	
Neural Correlates of Cognitive Modulation of Pain Perception in the Human Brainstem and Cervical Spinal Cord using Functional Magnetic Resonance Imaging: A Review	33
<i>R.H. Leung & P.W. Stroman</i>	
Functional Magnetic Resonance Imaging of the Human Brainstem and Cervical Spinal Cord during Cognitive Modulation of Pain	47
<i>R.H. Leung & P.W. Stroman</i>	
Opportunities and Challenges of 7 Tesla Magnetic Resonance Imaging: A Review	73
<i>M.I. Karamat, S. Darvish-Molla, & A. Santos-Diaz</i>	
Hydrocephalus and Ventriculoperitoneal Shunts: Modes of Failure and Opportunities for Improvement	91
<i>J. Jorgensen, C. Williams, & A. Sarang-Sieminski</i>	
Electrophysiological Cardiac Modeling: A Review	99
<i>M. Beheshti, K. Umapathy, & S. Krishnan</i>	
The Evolution of Neuroprosthetic Interfaces	123
<i>D.O. Adewole, M.D. Serruya, J.P. Harris, J.C. Burrell, D. Petrov, H.I. Chen, J.A. Wolf, & D.K. Cullen</i>	

ISSUE 3

Ebers, DaVinci, and Euler: Calculating the Pulse. Assumptions, Challenges, and Opportunities in Mathematical Modeling of Aortic Flow	153
<i>H.M.F. Sherif</i>	
Current Status of Radiological Multimodality Imaging	167
<i>M. Jain & M.D. Noseworthy</i>	
The Potential of Circadian Realignment in Rheumatoid Arthritis	177
<i>R.T. Rao, K.K. Pierre, N. Schlesinger, & I.P. Androulakis</i>	
Asymmetry in Signal Oscillations Contributes to Efficiency of Periodic Systems	193
<i>S-A. Bae, A. Acevedo, & I.P. Androulakis</i>	
Comprehensive Review on Magnetic Resonance Imaging in Alzheimer's Disease	213
<i>O. Dona, J. Thompson, & C. Druchok</i>	

ISSUE 4

Validation of Structural Equation Modeling Methods for Functional MRI Data Acquired in the Human Brainstem and Spinal Cord	227
<i>P.W. Stroman</i>	
A Review of Point-Wise Motion Tracking Algorithms for Fetal Magnetic Resonance Imaging	243
<i>S. Chikop, G. Koulagi, A. Kumbara, & S. Geethanath</i>	
A Kinematic Approach to Understanding Performance in Upper-Extremity Function during a Goal-Directed Man-Machine Interface Task in a Submariner Environment	255
<i>T. Deleon-Nwaha & D.R. Peterson</i>	

Energy Storage and Return Prostheses: A Review of Mechanical Models	269
<i>S. Rigney, A. Simmons, & L. Kark</i>	
Review of the Dielectric Properties of Animal and Human Tumors Determined from <i>In Vivo</i> Measurements	293
<i>E.C. Burdette, J. Seals, S.P. Auda, A.D. Ambhire, & R.L. Magin</i>	

ISSUE 5

SPECIAL ISSUE: MCMASTER RESEARCH HIGHLIGHTS

GUEST EDITORS: MARKAD V. KAMATH & HANI AODAH ALZAHrani

Preface: McMaster Research Highlights	v
<i>M.V. Kamath & H.A. Alzahrani</i>	
Transcranial Magnetic Stimulation in Migraine: A New Therapy and New Insights into Pathogenesis	319
<i>A.J. McComas & A.R.M. Upton</i>	
Air Pollution and Cardiovascular Disease: A Review	327
<i>V. Patel, N. Kantipudi, G. Jones, A. Upton, & M.V. Kamath</i>	
The Migraine Aura: A Problem for Vision Theory?	347
<i>A.J. McComas & A.R.M. Upton</i>	
A Review of Sensing Systems and Their Need for Environmental Water Monitoring	357
<i>L.H.-H. Hsu, A. Aryasomayajula, & P.R. Selvaganapathy</i>	
Air Pollution's Effects on the Human Respiratory System	383
<i>N. Kantipudi, V. Patel, G. Jones, M.V. Kamath, & A. Upton</i>	
Posture and Loading in the Pathomechanics of Carpal Tunnel Syndrome: A Review	397
<i>N. Vignais, J. Weresch, & P.J. Keir</i>	

ISSUE 6

Computed Tomography Image Matching in Chronic Obstructive Pulmonary Disease	411
<i>S. Bodduluri, S.P. Bhatt, & J.M. Reinhardt</i>	
Design and Construction of a Heteronuclear ¹H and ³¹P Double Tuned Coil for Breast Imaging and Spectroscopy	427
<i>S. Obruchkov, N.B. Konyer, & M.D. Noseworthy</i>	
Thermal Therapy Approaches for Treatment of Brain Tumors in Animals and Humans	443
<i>A.L. Bredlau, M.A. McCrackin, A. Motamarry, K. Helke, C. Chen, A.-M. Broome, & D. Haemmerich</i>	
The Virtual Microbiome: Computational Approaches to the Study of Microbe-Host Interactions	459
<i>J.J. Pothen, A.E. Dixon, & J.H.T. Bates</i>	
Imaging Chronic Traumatic Encephalopathy: A Biomedical Engineering Perspective	473
<i>P. Polak, J. Van Tuyl, & R. Engel</i>	
Deep Learning in Gastrointestinal Endoscopy	493
<i>V. Patel, D. Armstrong, M. Ganguli, S. Roopra, N. Kantipudi, S. Albashir, & M.V. Kamath</i>	
Index, Volume 44, 2016	505

CRITICAL REVIEWS™ IN BIOMEDICAL ENGINEERING

AUTHOR INDEX, VOLUME 44, 2016

Page Range of Issues – Issues 1-2: 1–152; Issue 3: 153–225; Issue 4: 227–318;
Issue 5: 319–410; Issue 6: 411–504

Acevedo, A., 193	Ganguli, M., 493	Pierre, K.K., 177
Adewole D.O., 123	Geethanath, S., 243	Piggott L, 1
Albashir, S., 493	Haemmerich, D., 443	Polak, P., 473
Alzahrani, H.A., v	Harris J.P., 123	Pothen, J.J., 459
Ambhire, 293	Helke, K., 443	Rao, R.T., 177
Androulakis, I.P., 177, 193	Hsu, L.H.-H., 357	Reinhardt, J.M., 411
Armstrong, D., 493	Jain, M., 167	Rigney, S., 269
Aryasomayajula, A., 357	Jones, G., 327, 383	Roopra, S., 493
Auda, S.P., 293	Jorgensen J., 91	Santos-Diaz A., 73
Bae, S-A., 193	Kamath, M.V., 327, 383, 493	Sarang-Sieminski A., 91
Bates, J.H.T., 459	Kantipudi, N., 327, 383, 493	Schlesinger, N., 177
Beheshti M., 99	Karamat M.I, 73	Seals, J., 293
Bhatt, S.P., 411	Kark, L., 269	Selvaganapathy, P.R., 357
Bodduluri, S., 411	Keir, P.J., 397	Serruya M.D., 123
Bredlau, A.L., 443	Konyer, N.B., 427	Sherif, H.M.F., 153
Broome, A.-M., 443	Koulagi, G., 243	Simmons, A., 269
Burdette, E.C., 293	Krishnan S., 99	Stroman P.W., 33, 47, 227
Burrell J.C., 123	Kumbara, A., 243	Thompson, J., 213
Chen H.I., 123	Leung R. H., 33, 47	Umopathy K., 99
Chen, C., 443	Magin, R.L., 293	Upton, A., 327, 383
Chikop, S., 243	McComas, A.J., 319, 347	Upton, A.R.M., 319, 347
Cullen D.K., 123	McCrackin, M.A., 443	Van Tuyl, J., 473
Darvish-Molla S., 73	Motamarry, A., 443	Vignais, N., 397
Deleon-Nwaha, T., 255	Noseworthy, M.D., 167, 427	Wagner S., 1
Dixon, A.E., 459	Obruchkov, S., 427	Weresch, J., 397
Dona, O., 213	Patel, V., 327, 383, 493	Williams C., 91
Druchok, C., 213	Peterson, D.R., 255	Wolf J.A., 123
Engel, R., 473	Petrov D., 123	Ziat M., 1

CRITICAL REVIEWS™ IN BIOMEDICAL ENGINEERING

SUBJECT INDEX, VOLUME 44, 2016

Page Range of Issues – Issues 1-2: 1–152; Issue 3: 153–225; Issue 4: 227–318;
Issue 5: 319–410; Issue 6: 411–504

- 7T MRI system, 73
agent-based model, 459
air pollution, 327
Alzheimer's disease, 213
anthropometry, 255
aorta, 153
arterial flow, 153
B0 inhomogeneity, 73
B1 inhomogeneity, 73
Bacteroidetes, 459
biological tissue, 293
brain injury, 1
brain MRI, 73
brain-machine interface, 123
brainstem, 33, 227
cancer, 293
canine, 443
cardiac electrophysiology, 99
cardiovascular diseases, 327
carpal tunnel pressure, 397
catheter, 91
center of gravity, 255
central nervous system, 91
cerebrospinal fluid, 91
challenges, 123
chronic concussion, 473
circadian realignment, 177
cognitive modulation of pain, 47
cognitive modulation, 33
colon polyps, 493
colonoscopy, 493
colorectal cancer, 493
comparative oncology, 443
computational fluid dynamics, 153
computer simulation, 99
conductivity, 293
connectivity, 227
contact stress, 397
contrast agents, 213
COPD phenotypes, 411
COPD, 411
Crohn's disease, 493
CT, 411
CTS, 397
decoding, 193
descending modulation, 47
dielectric properties, 293
differential equations, 459
dissolved oxygen, 357
dog, 443
dorsal horn, 33
dual tuned, 427
emphysema, 411
encoding, 193
ergonomics, 255
Euryarchaeota, 459
exoskeleton devices, 1
extracranial MRI, 73
feature detection, 243
fetal motion correction, 243
Firmicutes, 459
fMRI, 33, 227
functional imaging, 213
gait analysis, 269
glioma, 443
Goodwin, 193
haptic devices, 1
human factors, 255
hyperthermia, 293, 443
image matching, 411
image processing, 493
image registration, 411
intracarpal pressure, 397
inverse dynamics, 269
Jacobian, 411
Kyoto Protocol, 383
laser interstitial thermal therapy, 443
lower-limb amputees, 269
magnetic resonance imaging, 213, 243, 427, 473
magnetic resonance spectroscopy, 73, 427
mathematical modeling, 153
mathematical models, 99
mechanisms, 397
median nerve, 397
meningioma, 443
metabolic model, 459
microwave frequencies, 293
migraine aura, 347
migraine pathogenesis, 319
migraine treatment, 319
migraine, 319
modeling, 227
MRI, 213
MRI-stereotactic, 167
MRI-US, 167
neural engineering, 123
neuroimaging, 227
neuro-oncology, 443
neurorehabilitation, 1
nitrates, 357
orientation-selective cells, 347
oscillating signals, 193
oxidative stress, 383
pain processing, 33
pain, 227
parametric response mapping, 411
PER, 193
permittivity, 293
PET-CT, 167
PET-MRI, 167
phosphates, 357
PM 10, 383
PM 2.5, 383
point-wise detection and
proinflammatory cytokines, 177
prosthetic, 123
prosthetics, 269
proton emission tomography, 473
radio frequencies, 293
radiofrequency, 443
recording, 123
regional ventilation, 411
repetitive strain injury, 397
RF coil, 427
rheumatoid arthritis, 177
robotics, 1
seasonality, 177
sensors, 357
short-chain fatty acid, 459
simulation, 153
solid mechanics, 269
specific absorption rate, 73
SPECT-CT, 167
spectroscopy, 213
spinal cord, 33, 227
spinal fMRI, 47
stimulation, 123
structural equation modeling, 47
time-restricted feeding, 177
TMS therapy, 319
TMS, 319
touchscreen tasks, 255
tracking, 243
translational research, 443

traumatic brain injury,
473
tumors, 293
ultrahigh field magnetic resonance
imaging, 73

upper-extremity kinematics, 255
V1 organization, 347
ventricles, 91
virtual reality, 1
vision theory, 347

VP shunt, 91
water fouling, 357
water pollution, 357
wireless capsule endoscopy, 493
workplace design, 255

