

特別講演

(1) Room A 13:00-14:00 Thursday, September 12

第1日目 A会場 9月12日(木) 13:00~14:00

講演者 臼井 支朗 先生 (豊橋技術科学大学)

**S. Usui (EIRIS, Toyohashi Univ. of Technology
and NIJC at RIKEN-BSI)**

講演題目 **Personal review for physiological engineering to life
engineering: 40 years from TUT, RIKEN to EIRIS**

(2) Room A 17:00-18:00 Friday, September 13

第2日目 A会場 9月13日(金) 17:00~18:00

講演者 南谷 晴之 先生 (千歳科学技術大学)

H. Minamitani (Chitose Institute of Science and Technology)

講演題目 **Affluent quality of facial expressions as the human
emotional exposure analyzed by the optical flow method**
情動表出としての表情の豊かさをオプティカルフローで解析する

教育講演

Room A 13:00-14:00 Friday, September 13

第2日目 A会場 9月13日(金) 13:00~14:00

講演者 木村 英紀 先生(科学技術振興機構研究開発戦略センター)

**H. Kimura (Center for Research and Development Strategy,
Japan Science and Technology Agency)**

講演題目 制御と生命科学

Meets the editors I & II

※IEEE EMBS Japan Chapter と共催

I 生体医工学分野でアクセプトされる論文を書くには

Room A 17:10-18:10 Thursday, September 12

第1日目 A会場 9月12日(木) 17:10~18:10

近畿大学 木村裕一 先生

II モノ作り論文 ~構成から失敗体験まで~

Room A 16:10-17:00 Saturday, September 14

第3日目 A会場 9月14日(土) 16:10~17:00

東京農工大学 藤田欣也 先生

学生奨励賞選奨特別セッション

Room A 15:50-17:05 Thursday, September 12

第1日目 A会場 9月12日(木) 15:50~17:05

- SR-1 **Early prediction of the driver's low arousal state using the biological information immediately after to start driving**
運転初期段階の生体情報を用いたドライバの覚醒度低下状態早期予測 (3B2-4)
Y. Hayata¹, Md. S. Bhuiyan², H. Kawanaka¹, K. Oguri¹
1 Aichi Prefectural University
2 Suzuka University of Medical Science
- SR-2 **Spatio-temporal dynamics of green autofluorescence in the cerebral cortex of mice**
マウス大脳皮質における緑色自家蛍光の時空間ダイナミクス (2C3-4)
D. Nakagawa¹, N. Katayama¹, A. Ueno^{1,2}, A. Karashima¹, M. Nakao¹
1 Graduate School of Information Sciences, Tohoku University
2 Research Fellow of Japan Society for the Promotion of Science (DC)
- SR-3 **Analysis of the relationship between evaluation indices of arteriosclerosis by using the blood analysis model (1C1-1)**
Y. Kondo¹, Y. Yamazaki^{1,2}, Y. Kamiyama¹
1 Information Science and Technology, Aichi Prefectural University
2 Priority Research Project, Aichi Science and Technology Foundation
- SR-4 **A simulation analysis of the connectivity between retinal cone and ganglion cells**
網膜錐体-神経節細胞間結合のシミュレーション解析 (1B1-6)
H. Serizawa¹, Y. Kamiyama¹
1 Information Science and Technology, Aichi Prefectural University
- SR-5 **Information rate analysis of the retinal cone mosaic**
数理モデルを用いた錐体モザイクの情報量解析 (1B1-7)
M. Kunieda¹, Y. Kamiyama¹
1 Information Science and Technology, Aichi Prefectural University

タイトルの後の英数字は、一般のセッションでの講演番号を表す。

一般講演

Room A Thursday, September 12

第1日目 A会場 9月12日(木)

1A1 10:00~12:00

光による脳機能計測

Organizer: Eiji Okada (Keio University)

Session Chairs: Eiji Okada (Keio University),
Hiroshi Kawaguchi (National Institute of Radiological Sciences)

1A1-1 Microscopic optical imaging of neurovascular coupling dynamics

K. Masamoto^{1,2}, I. Kanno²

1 Brain Science Inspired Life Support Research Center, University of Electro-Communications
2 National Institute of Radiological Sciences

**1A1-2 Optical diagnosis of brain tissue viability based on diffuse light reflectance:
Implication of optical monitoring of spreading depolarization**

S. Kawauchi¹, I. Nishidate², H. Nawashiro³, S. Sato¹

1 National Defense Medical College Research Institute
2 Tokyo University of Agriculture and Technology
3 Tokorozawa Central Hospital

1A1-3 Discrimination method between deep and shallow components in NIRS signal

T. Funane¹, H. Atsumori¹, T. Katura¹, A. Obata¹, H. Sato¹, Y. Tanikawa², E. Okada³,
M. Kiguchi¹

1 Hitachi, Ltd., Central Research Laboratory
2 National Institute of Advanced Industrial Science and Technology
3 Keio University, Department of Electronics and Electrical Engineering

**1A1-4 Image reconstruction based on light propagation analysis of adult head
for functional near-infrared spectroscopy**

H. Kawaguchi¹, T. Obata¹, K. Kurihara², H. Ito¹, E. Okada²

1 National Institute of Radiological Sciences
2 Keio University

1A2 14:10~15:40

歩行運動制御の統合的数理モデル

Organizer: Taishin Nomura (Osaka University)

Session Chair: Taishin Nomura (Osaka University)

1A2-1 Biomechanical analyses of bipedal walking in the Japanese macaque based on forward and inverse dynamic simulations

N. Ogihara¹, N. Ide¹, M. Hamano¹

1 Department of Mechanical Engineering, Keio University

1A2-2 Evaluation of physiological hypothesis of motor control in human walking and running using a neuromusculoskeletal model

S. Aoi^{1,4}, N. Tomita^{2,4}, T. Funato^{3,4}, K. Tsuchiya^{1,4}

1 Dept. of Aeronautics and Astronautics, Graduate School of Engineering, Kyoto University

2 Dept. of Mathematics, Graduate School of Science, Kyoto University

3 Dept. of Mechanical Engineering and Intelligent Systems, The University of Electro-Communications

4 JST, CREST

1A2-3 Notes on stability of human motor control

T. Nomura¹

1 Osaka University

Room B Thursday, September 12

第 1 日目 B会場 9月12日 (木)

1B1 10:00~11:45

視覚機能

Session Chairs: Tetsuya Yagi (Osaka University),
Yoshimi Kamiyama (Aichi Prefectural University)

1B1-1 Relationship between visual field loss and optic chiasm compression by pituitary adenoma

S. Ito¹, Y. Yoneoka², T. Hatase³, Y. Fujii², T. Fukuchi³, A. Iijima¹

1 Faculty of Engineering, Niigata University

2 Brain Research Institute, Niigata University

3 Faculty of Medicine, Niigata University

1B1-2 Gaze estimation method based on voltage-ratio calculated from multi electro-oculogram signals

F. Ishida¹, H. Hirano¹, Y. Fujimura¹

1 Toyama National College of Technology

1B1-3 Eye movements and emotional changes during "weapon focus" phenomenon

I. Hidaka¹, T. Naruse¹, D. Nozaki¹

1 Graduate School of Education, The University of Tokyo

1B1-4 Evaluation of visual system responding to 3D images with coherence function between pupil and luminosity

R. Imamura¹, K. Matsuki¹, T. Bando², A. Iijima¹

1 Faculty of Engineering, Niigata University

2 Faculty of Medicine, Niigata University

1B1-5 Hardware implementation of retinal spike dynamics based on a physiological model

生理学モデルに基づく網膜スパイク発火ダイナミクスのハードウェア実装

R. Ishida¹, H. Okuno¹, Y. Hayashida¹, H. Cho¹, J. Hasegawa¹, T. Yagi¹

1 Osaka University

1B1-6 A simulation analysis of the connectivity between retinal cone and ganglion cells

網膜錐体-神経節細胞間結合のシミュレーション解析

H. Serizawa¹, Y. Kamiyama¹

1 Information Science and Technology, Aichi Prefectural University

1B1-7 Information rate analysis of the retinal cone mosaic

数理モデルを用いた錐体モザイクの情報量解析

M. Kunieda¹, Y. Kamiyama¹

1 Information Science and Technology, Aichi Prefectural University

1B2 14:10~15:40

筋音とその応用 Mechanomyography and its application

Organizer: Takanori Uchiyama (Keio University)

Session Chairs: Takanori Uchiyama (Keio University),
Hisao Oka (Okayama University)

1B2-1 Mechanomyographic investigation of digastric muscle during swallowing reflex

Y. Itoh^{1,2}, Y. Urata³, S. Fujiwara³, M. Yasubayashi⁴, K. Kubo⁵, K. Akataki⁶, K. Mita^{5,2}

1 Institute for Developmental Research, Aichi Human Service Center

2 RTC, RIKEN Advanced Science Institute

3 Ashahi University

4 Chubu University

5 Seijoh University

1B2-2 Simultaneous measurement of displacement MMG/EMG during exercise

H. Oka¹, Y. Konishi¹, T. Kitawaki¹

1 Okayama University

1B2-3 Mechanism of machanomyogram and its model

T. Uchiyama¹, H. Sakai², T. Tamura²

1 Keio University

2 Graduate School of Science and Technology, Keio University

Room C Thursday, September 12

第1日目 C会場 9月12日(木)

1C1 10:00~11:30

循環計測・シミュレーション

Session Chairs: Shinobu Tanaka (Kanazawa University),
Yasunari Yokota (Gifu University)

1C1-1 Analysis of the relationship between evaluation indices of arteriosclerosis by using the blood analysis model

Y. Kondo¹, Y. Yamazaki^{1,2}, Y. Kamiyama¹

1 Information Science and Technology, Aichi Prefectural University

2 Priority Research Project, Aichi Science and Technology Foundation

1C1-2 Estimation of vascular wall mechanical properties based on flow-mediated dilation using a mathematical model

Y. Yamazaki^{1,2}, Y. Kondo², Y. Kamiyama²

1 Knowledge Hub Aichi, Priority Research Project, Aichi Science and Technology Foundation

2 School of Information Science and Technology, Aichi Prefectural University

1C1-3 Development of *in vitro* model for studying of the interaction between neuronal network and blood-brain barrier

神経回路網-血液脳関門の相互作用評価に向けた *in vitro* モデルの構築

Y. Nakashima¹, K. Shimba¹, A. Saito¹, K. Kotani¹, Y. Jimbo¹

1 Graduate School of Frontier Sciences, The University of Tokyo

1C1-4 Echo-tracking assessment of carotid artery diameter in patients with cardiac surgery

頸動脈径自動検出システムを用いた心臓外科手術による頸動脈径変化に対する影響の検討

Y. Kawamura¹, Y. Yokota², Y. Umeda³

1 Research and Development Center for Human Medical Engineering, Gifu University

2 Faculty of Engineering, Gifu University

3 Gifu Prefectural General Medical Center

1C1-5 Effects of vagal stimulation therapy on dynamic characteristics of the arterial baroreflex in chronic heart failure rats

T. Kawada¹, M. Li¹, C. Zheng¹, K. Uemura¹, M. Sugimachi¹

1 Department of Cardiovascular Dynamics, National Cerebral and Cardiovascular Center

1C1-6 Effect of exercise on the increase response to visual stimulation in posterior cerebral artery blood flow

Y. Yamaguchi¹, T. Ikemura¹, H. Kashima², A. Miyaji¹, N. Hayashi³

1 Graduate School of Human-Environment Studies, Kyushu University

2 School of Health and Nutritional Sciences, Prefectural University of Hiroshima

3 Graduate School of Decision Science and Technology, Tokyo Institute of Technology

1C2 14:10~15:10

呼吸・代謝

Session Chair: Hiroshi Hagiwara (Ritsumeikan University)

1C2-1 Effects of citric acid supplementation on energy metabolism during exercise

R. Nomura¹, K. Niizeki², T. Saitoh², T. Nakamura¹

1 Graduate School of Medical Science, Yamagata University

2 Graduate School of Science and Engineering, Yamagata University

1C2-2 Effects of a respiratory rate on phase II pulmonary oxygen uptake kinetics during exercise

H. Kobayashi¹, J. Yanai¹, K. Niizeki¹, T. Saitoh¹

1 Graduate School of Science and Engineering, Yamagata University

1C2-3 Physiological and psychological effects of respiratory control using illuminance change based on biological signal

生体由来信号に基づく照度変化を用いた呼吸統制の生理的・心理的効果

K. Moriura¹, H. Hagiwara²

1 Graduate School of Information Science and Engineering, Ritsumeikan University

2 College of Information Science and Engineering, Ritsumeikan University

1C2-4 Development and evaluation of bridge circuit with strain gauges to estimate chest shape for a wearable electrical impedance tomography

S. Hifumi¹, S. Nebuya¹, H. Kumagai¹

1 Graduate school of Medical Sciences, Kitasato University,

Room A Friday, September 13

第2日目 A会場 9月13日(金)

2A1 9:00~11:30

低侵襲な循環モニターの開発 -基礎研究開発から臨床応用まで-

Organizer: Kazunori Uemura (National Cerebral and Cardiovascular Center)

Session Chairs: Kazunori Uemura (National Cerebral and Cardiovascular Center),
Masaru Sugimachi (National Cerebral and Cardiovascular Center)

2A1-1 **A novel continuous cardiac output monitor utilizing ECG and SpO2 pulse wave**

Y. Sugo¹

1 Telemetry Technology Center, Nihon Kohden Corporation

2A1-2 **Pulse dye densitometry and mean transit time of the dye**

N. Kobayashi¹

1 Nihon Kohden Corporation

2A1-3 **Implications of less-invasive hemodynamic monitoring in high-risk medical and surgical patients**

Y. Kotake¹

1 Toho University Ohashi Medical Center

2A1-4 **Application of uncalibrated continuous cardiac output monitor to intensive hemodynamic management after subarachnoid hemorrhage**

T. Mutoh^{1,2}, T. Ishikawa²

1 Department of Neurosurgery, Shikaihoken Kobe Central Hospital

2 Department of Surgical Neurology, Research Institute for Brain and Blood Vessels-AKITA

2A1-5 **Minimally invasive cardiac output monitor utilizing aortic flow velocity and peripheral arterial pressure profile**

K. Uemura¹, M. Sugimachi¹

1 Department of Cardiovascular Dynamics, National Cerebral and Cardiovascular Center

2A2 14:10~16:40

ライフエンジニアリングにおける制御

Organizer: Takehito Azuma (Utsunomiya University)

Session Chairs: Takehito Azuma (Utsunomiya University),
Yasunori Kawai (Ishikawa National College of Technology)

2A2-1 Robustness analysis of a cell cycle system

T. Azuma¹

1 Utsunomiya University

2A2-2 Robustness analysis of biomolecular systems —Toward system-level circuit design

M. Inoue¹, T. Arai¹, J.-I. Imura¹, K. Kashima², K. Aihara³

1 Tokyo Institute of Technology

2 Osaka University

3 The University of Tokyo

2A2-3 Which has a better chemotaxis controller, Escherichia coli or Paramecia?

S. Azuma¹, K. Owaki¹, M. Shinohara¹, T. Sugie¹

1 Kyoto University

**2A2-4 Computational techniques for analysis and control of gene regulatory networks:
A boolean network approach**

K. Kobayashi¹, K. Hiraishi¹

1 Japan Advanced Institute of Science and Technology

2A2-5 Comparison between passivity and RISE based control for 2DOF human lower limb tracking

Y. Kawai¹, H. Kawai², M. Fujita³

1 Ishikawa National College of Technology

2 Kanazawa Institute of Technology

3 Tokyo Institute of Technology

Room B Friday, September 13

第2日目 B会場 9月13日(金)

2B1 9:00~11:30

上肢運動の制御と学習のメカニズム ~基礎と臨床のクロストーク~

Organizers: Junichi Ushiba (Keio University),
Daichi Nozaki (The University of Tokyo)

Session Chairs: Junichi Ushiba (Keio University),
Daichi Nozaki (The University of Tokyo)

2B1-1 Computational approach toward understanding of motor control and learning

D. Nozaki¹

1 Graduate School of Education, The University of Tokyo

2B1-2 Neural substrates for functional recovery after from brain damage; spinal cord, cortex and limbic system

Y. Nishimura^{1,2,3}

1 Department of Developmental Physiology, National Institute for Physiological Sciences

2 Graduate University for Advanced Studies (SOKENDAI)

3 Precursory Research for Embryonic Science and Technology, Japan Science and Technology Agency

2B1-3 Social manipulation of motor skill acquisition

S. Tanaka¹, S. K. Sugawara²

1 Nagoya Institute of Technology

2 National Institute for Physiological Sciences

2B1-4 Exploring mechanisms of brain-computer interface rehabilitation leading restoration of upper extremity motor function in stroke hemiplegia

J. Ushiba¹

1 Faculty of Science and Technology, Keio University

2B1-5 Reaching in stroke patients: how do clinicians evaluate and treat it?

A. Horie¹, M. Liu¹

1 Department of Rehabilitation Medicine/Keio University School of Medicine

2B2 14:10~15:10

運動制御

Session Chair: Yasuhiro Wada (Nagaoka University of Technology)

2B2-1 A study on enhancement of switching motor imagery by EEG Neurofeedback

EEG ニューロフィードバック学習による想起運動切り替えに関する考察

H. Yokoyama¹, I. Nambu¹, T. Aihara², R. Osu², J. Izawa³, Y. Wada¹

1 Nagaoka University of Technology

2 ATR Brain Information Communication Research Laboratory Group

3 NTT Communication Science Laboratories

2B2-2 Investigation of EEG signals before failure to inhibit motor responses

運動抑制反応エラー前に変化する EEG 信号についての検討

S. Yamane¹, I. Nambu¹, Y. Wada¹

1 Nagaoka University of Technology

2B2-3 The effects of opposite side grasping state on the motor learning of reaching movements under a viscos force field

回転粘性力場下の到達運動学習に反対側の把持状態が及ぼす影響

H. Fukuda¹, T. Kondo¹

1 Tokyo University of Agriculture and Technology

2B2-4 Effect of visual feedback time on bimanual pinch force control for young and older adult

K. Critchley¹, T. Kurihara¹, T. Isaka¹

1 Ritsumeikan University

2B3 15:30~16:30

筋活動

Session Chair: Tadao Isaka (Ritsumeikan University)

2B3-1 Estimation of Muscle Fatigue Based on the Frequency Analysis of EMG

D. Kushida¹, T. Aoki¹, A. Kitamura¹

¹ Tottori University

2B3-2 Selection of effective muscle toward biosignal-based control of electrically assisted bicycle

S. Nagaya¹, T. Kiryu¹

¹ Graduate School of Science and Technology, Niigata University

2B3-3 Identification of surface and deep layers muscle activity using concentric-ring array electrode

T. Koshio¹, S. Sakurazawa¹, M. Toda², J. Akita³, K. Kondo⁴, Y. Nakamura⁴

¹ Future University Hakodate

² Kumamoto University

³ Kanazawa University

⁴ Kyoto University

2B3-4 Measurement of forearm muscle activity by EMG · MMG · NIRS layer sensor

A. Kimoto¹, Y. Yamada¹

¹ Saga University

Room C Friday, September 13

第2日目 C会場 9月13日(金)

2C1 9:00~10:15

高次脳機能の解析

Session Chairs: Seiji Nakagawa (AIST),
Yoshinobu Ebisawa (Shizuoka University)

2C1-1 Quantitative analysis of emotional responses to visual stimuli with pupillometry

H. Honda¹, T. Bando², A. Iijima¹

¹ Graduate School of Science and Technology, Niigata University

² School of Medicine, Niigata University

2C1-2 Proposal of an infant autism diagnosis aid system based on gaze points in face video image

顔動画上の注視点に基づく乳幼児自閉症診断補助装置の提案

T. Maeda¹, K. Fukumoto¹, Y. Ebisawa¹

¹ Shizuoka University

2C1-3 Study on the blood circulation responses caused by tension/unpleasant evoking stimulus

M. Yamashita¹, T. Aikawa¹, N. Mamorita¹, J. Arisawa¹, M. Kitama¹, H. Shimizu¹

¹ Hokkaido Institute of Technology

2C1-4 Effects of light wavelengths on ERD/ERS during a working memory task

Y. Okamoto¹, S. Nakagawa¹

¹ National Institute of Advanced Industrial Science and Technology (AIST)

2C1-5 Effects of olfactory stimulation on brain activity, autonomic nervous activity, and task performance

ニオイ刺激に対する脳・自律神経活動および作業パフォーマンスの評価

Y. Kishida¹, T. Numata¹, Y. Ogawa¹, K. Kotani¹, Y. Jimbo¹

¹ Graduate School of Frontier Sciences, The University of Tokyo

2C2 10:35~11:35

脳機能イメージング

Session Chair: Toshiyuki Kondo (Tokyo University of Agriculture and Technology)

2C2-1 Functions of the visual word form area for the segmentation processing of Japanese sentences: An fMRI study

T. Ohtake¹, A. Iijima², K. Miyata³, K. Nakahara⁴, S. Kameyama⁵, H. Masuda⁵,
I. Hasegawa²

1 Electrical and Information Engineering, Niigata University Graduate School of Science and Technology

2 Department of Physiology, Niigata University Graduate School of Medicine

3 Department of Bio-cybernetics, Faculty of Engineering, Niigata University

4 Research Center for Brain Communication, Kochi University of Technology

5 Nishi-Niigata Chuo National Hospital

2C2-2 Removing skin blood flow artifact in measurement of event-related functional near-infrared spectroscopy

頭皮血流アーティファクト除去による事象関連 fNIRS 計測の検討

T. Ozawa¹, T. Aihara², Y. Fujiwara², Y. Otaka^{3,4}, I. Nambu¹, R. Osu², J. Izawa⁵, Y. Wada¹

1 Nagaoka University of Technology

2 ATR

3 Keio University

4 Tokyo Bay Rehabilitation Hospital

5 NTT Communication Science Laboratories

2C2-3 Analysis of the effect of preference in price evaluation tasks: A NIRS study

NIRS を用いた価格評価課題における嗜好の影響についての分析

A. Yamada¹, T. Kondo¹

1 Tokyo University of Agriculture and Technology

2C2-4 Study on multi-channel signal processing method for brain function measurement by near-infrared spectroscopy

近赤外分光法による脳機能計測の外乱補正手段の立に向けた多チャンネル信号処理方法の検討

A. Takao¹, K. Fukuda¹

1 Tokyo Metropolitan Collage of Industrial Technology

2C3 14:10~15:10

ニューロエンジニアリング I

Session Chair: Takeshi Aihara (Tamagawa University)

2C3-1 Evaluation of Amyloid β (1-42) toxicity using Alzheimer's disease *in vitro* model

アルツハイマー病 *in vitro* モデルを用いたミロイド β (1-42) 毒性の評価

T. Maruyama¹, L. Yoshida², K. Kotani², S. Suzuki¹, Y. Jimbo²

1 Seikei University

2 The University of Tokyo

2C3-2 Culture device for analysis of activity in developing neuronal circuit and control morphology by electrical stimulation

神経回路網の発達過程における活動特性解析と電気刺激による形態制御手法の開発

Y. Kondo¹, Y. Takayama², T. Hoshino¹, A. Wagatsuma¹, O. Fukayama¹, K. Mabuchi¹

1 The University of Tokyo

2 National Institute of Advanced Industrial Science and Technology

2C3-3 Evaluation of functional connectivity in hippocampal neuronal network with femtosecond-laser cutting of neurites

H. Kubo^{1,2}, S. N. Kudoh², T. Taguchi³, C. Hosokawa^{1,2}

1 Health Research Institute, National Institute of Advanced Industrial Science and Technology (AIST)

2 Graduate School of Science and Technology, Kwansai Gakuin University

3 Center for information and Network, National Institute of information and communication Technology (NICT)

2C3-4 Spatio-temporal dynamics of green autofluorescence in the cerebral cortex of mice

マウス大脳皮質における緑色自家蛍光の時空間ダイナミクス

D. Nakagawa¹, N. Katayama¹, A. Ueno^{1,2}, A. Karashima¹, M. Nakao¹

1 Graduate School of Information Sciences, Tohoku University

2 Research Fellow of Japan Society for the Promotion of Science (DC)

2C4 15:30~16:30

ニューロエンジニアリング II

Session Chair: Mitsuyuki Nakao (Tohoku University)

2C4-1 Analysis of non-spatial information effecting to spatial information in the hippocampal dentate granule cells

H. Hayakawa¹, T. Kamijo¹, T. Samura², T. Aihara¹
1 Graduate School of Brain Sciences, Tamagawa University
2 Brain Science Institute, Tamagawa University

2C4-2 Relationship between intracellular Ca²⁺ and spontaneous bursting activity

A. Shuta¹, S. N. Kudoh¹
1 Kwansei Gakuin University

2C4-3 Spontaneous activity pattern modified by transient inhibition of electrical spike activity in a cultured living neuronal network

Y. Ooki¹, H. Ito¹, W. Minoshima¹, S. N. Kudoh¹
1 School of Science and Technology, Kwansei Gakuin University

2C4-4 Decoding the neural adaptation to input signals using connection-strength estimation

T. Isomura¹, Y. Ogawa¹, K. Kotani¹, Y. Jimbo¹
1 Department of Human and Engineered Environmental Studies, Graduate School of Frontier Sciences, The University of Tokyo

Room A Saturday, September 14

第3日目 A会場 9月14日（土）

3A1 9:00~11:30

ライフエンジニアリングとスポーツ科学の融合

Organizers: Tadao Isaka (Ritsumeikan University),
Naruhiro Shiozawa (Ritsumeikan University)

Session Chairs: Akinori Nagano (Kobe University),
Naruhiro Shiozawa (Ritsumeikan University)

3A1-1 Development of new training machine using variable load control

T. Honjo¹, N. Shiozawa¹, T. Isaka¹

1 Ritsumeikan University

3A1-2 Proposal for a course of study by motion analysis

M. Otsuka¹, S. Otomo¹, T. Isaka¹, T. Kurihara¹, A. Ito²

1 Ritsumeikan University

2 Osaka University of Health and Sports Sciences

3A1-3 Relationship between regional differences in muscle activation and muscle hypertrophy after 8 weeks training using a variable mechanical impedance device

T. Kurihara¹, A. Nakatsuka², T. Isaka¹

1 Ritsumeikan University

2 Minato Medical Science Co. Ltd.

3A1-4 Research and development of an assessment system for cognitive function using virtual reality

H. Sakai¹, S. Okahashi^{2,3}, M. Kojima⁴, A. Nagano³, Z. Luo³

1 Tokyo University of Technology

2 Kyoto University

3 Kobe University

4 Nishiyamato Rehabilitation Hospital

3A1-5 Research and development of a markerless motion capture system using smart phone

A. Nagano¹

1 Kobe University

3A2 13:00~15:30

ライフエンジニアリング分野における神経科学の貢献

Organizer: Atsuhiko Iijima (Niigata University)

Session Chairs: Atsuhiko Iijima (Niigata University),
Toru Kiryu (Niigata University)

※日本生体医工学会 専門別研究会生体信号計測・解釈研究会と共催

3A2-1 Processing of biosignals for safe applications

T. Kiryu¹

1 Niigata University

3A2-2 Motor learning theories and its application for therapeutic strategies of hemiparetic upper extremity

S. Kasuga¹

1 Faculty of Science and Technology, Keio University

3A2-3 High density electrocorticography

H. Sawahata¹, H. Toda², T. Suzuki³, T Kawano¹, I. Hasegawa²

1 Toyohashi University of technology

2 Niigata University

3A2-4 Friend or foe?: A primate model of social cognition

K. Kato¹, Y. Nishiyama¹, K. Kawasaki¹, I. Hasewgawa¹

1 Department of physiology, School of Medicine, University of Niigata

3A2-5 Neuroscience and biomedical engineering researches for life-engineering fields

A. Iijima¹

1 Niigata University

Room B Saturday, September 14

第3日目 B会場 9月14日（土）

3B1 9:00~10:00

ヘルスケア

Session Chair: Tomoki Kitawaki (Okayama University)

3B1-1 Association between rapid eating and obesity

Y. Hamada^{1,3}, H. Kashima^{1,2}, A. Miyaji^{1,3}, N. Hayashi³

1 Graduate School of Human-Environment Studies, Kyushu University

2 School of Health Sciences, Prefectural University of Hiroshima

3 Graduate School of Decision Science and Technology, Tokyo Institute of Technology

3B1-2 Development of an optical system for monitoring urine substances based on near-infrared spectroscopy for the use of home health care

在宅健康管理のためのトイレ内蔵型光学式尿成分分析システムの開発

N. Morimoto¹, S. Orita¹, M. Ogawa², M. Nogawa¹, S. Tanaka¹, K. Yamakoshi¹

1 Graduate School of Natural Science and Technology, Kanazawa University

2 Department of Human Information Systems, Teikyo University

3B1-3 Automatic creation of an original image filter based on the GA with EM algorithm for vein shapes

K. Kashihara¹

1 The University of Tokushima

3B1-4 Evaluation of gait movement due to differences in footwear using a gait analyzing device

歩行状態解析装置を用いた履物の違いによる歩行動作の評価

T. Kitawaki¹, K. Hayashida¹, H. Makino¹, Y. Konishi¹, H. Oka¹

1 Okayama University

3B2 10:20~11:20

知覚情報処理

Session Chair: Haruki Kawanaka (Aichi Prefectural University)

3B2-1 Characteristics extraction of OxyHb by the difference of distribution of attentional resource

注意資源量配分の違いによる脳内血中酸素化ヘモグロビン濃度変化の特徴抽出

N. Komiyama¹, H. Hagiwara²

1 Graduate School of Information Science and Engineering, Ritsumeikan University

2 College of Information Science and Engineering, Ritsumeikan University

3B2-2 Hearing characteristics by a pinna-conduction: Detection threshold and acoustical properties in the outer ear

S. Nakagawa¹, T. Hotehama¹, K. Ito¹

1 Health Research Institute, National Institute of Advanced Industrial Science and Technology (AIST)

3B2-3 The influence of fatigue caused by all-out exercise upon taste sensitivities

Y. Nakanishi¹, T. Ito², S. Inoue², T. Murakami², M. Kasama¹

1 Osaka-Aoyama University

2 Mukogawa Women's University,

3B2-4 Early prediction of the driver's low arousal state using the biological information immediately after to start driving

運転初期段階の生体情報を用いたドライバの覚醒度低下状態早期予測

Y. Hayata¹, Md. S. Bhuiyan², H. Kawanaka¹, K. Oguri¹

1 Aichi Prefectural University

2 Suzuka University of Medical Science

3B3 13:00~14:45

BMI/BCI

Session Chairs: Takeshi Furuhashi (Nagoya University),
Kiyoshi Kotani (The University of Tokyo)

3B3-1 Study on functional changes of neural activity induced by intracortical microstimulation triggered with physical activity

運動に連動した微小電流刺激による神経活動変化の誘発に関する研究

M. Yokota¹, R. Nakanishi¹, O. Fukayama¹, T. Suzuki², K. Mabuchi¹

1 The University of Tokyo

2 NICT

3B3-2 Background mechanisms for the suppression of beta rhythm during movement: A modeling approach

K. Morita¹, X. Li², M. Small³, H. P. C. Robinson⁴

1 The University of Tokyo

2 Chongqing University

3 The University of Western Australia

4 University of Cambridge

3B3-3 Relationship between motor load and ERD during real hand movements

K. Nakayashiki¹, Y. Takata¹, M. Saeki¹, T. Kondo¹

1 Tokyo University of Agriculture and Technology

3B3-4 Evaluation of autonomic nerve activity for error correction of brain-computer interface

Brain-Computer Interface の誤り訂正へ向けた自律神経活動の評価

K. Uno¹, Y. Ogawa¹, T. Numata¹, K. Kotani¹, Y. Jimbo¹

1 Graduate School of Frontier Sciences, University of Tokyo

3B3-5 A study on input letters by P300 speller considering user's input intention

K. Kawai¹, T. Yoshikawa¹, T. Furuhashi¹

1 Nagoya University

3B3-6 Feedback of N-gram information into prior probability in Japanese P300 speller

E. Samizo¹, T. Yoshikawa¹, T. Furuhashi¹

1 Nagoya University

3B3-7 Fluctuation of power on SSVEP in the case of long term

A. Funase^{1,2}, A. Itai³, A. Cichocki², I. Takumi¹

1 Nagoya Institute of Technology

2 RIKEN

3 Chubu University

3B4 15:05~16:05

モレキュラー・ライフエンジニアリング

Session Chair: Hidenori Inaoka (Kitasato University)

3B4-1 Effects of a DPP-4 inhibitor, alogliptin, on the rat peripheral sympathetic nerve activity

ラット末梢交感神経活動に及ぼす DPP-4 阻害剤 alogliptin の影響

M. Kodama¹, H. Sasaki¹, D. Sato¹, M. Kusunoki², T. Nakamura¹

¹ Yamagata University Graduate School of Medical Science

² Aichi Medical University

3B4-2 Neuronal death of dissociated cortical neurons induced by pilocarpine

神経保護作用の解明に向けた養大脳皮質細胞における pilocarpine の影響評価

M. Iwaoka¹, K. Shimba¹, T. Isomura¹, K. Kotani¹, Y. Jimbo¹

¹ Graduate School of Frontier Sciences, The University of Tokyo

3B4-3 Anesthesia control based on drug concentrations for keeping appropriate hypnosis and analgesia

E. Furutani¹, Y. Nakayama², T. Takeda³, G. Shirakami³

¹ Kyoto University

² Komatsu Ltd.

³ Kagawa University

3B4-4 Genome-wide analysis of the spatial distribution and DNA methylation of the CpGs located near the transcription start points

H. Inaoka¹, Y. Fukuoka²

¹ Kitasato University

² Kogakuin University

Room C Saturday, September 14

第3日目 C会場 9月14日(土)

3C1 9:00~12:00

脳神経インターフェイスシステムのこれから

Organizer: Yuki Hayashida (Osaka University)

Session Chairs: Makoto Osanai (Tohoku University),
Yuki Hayashida (Osaka University)

3C1-1 Multi-channel ECoG recording system for Brain-Machine Interface

H. Ando¹, K. Takizawa¹, T. Yoshida², K. Matsushita¹, M. Hirata¹, T. Yoshimine¹,
T. Suzuki¹

1 Center for Information and Neural networks (CiNet), National Institute of Information and
Communications Technology, and Osaka University

2 Graduate School of Advanced Sciences of Matter, Hiroshima University

3C1-2 CMOS-based implantable neural interface devices

T. Tokuda^{1,2}, T. Noda¹, K. Sasagawa¹, J. Ohta¹

1 Nara Institute of Science and Technology

2 JST-PRESTO, Japan Science and Technology Agency

3C1-3 A multi-channel current-pulse generator chip used for high impedance stimulating electrodes

S. Kameda¹, Y. Hayashida¹, H. Tanaka¹, D. Akita¹, T. Yagi¹

1 Osaka University

3C1-4 Neural micro-stimulations for brain interface

~Millisecond imaging of neural responses in the mouse visual cortex~

Y. Hayashida¹, T. Kozuno¹, K. Takeuchi¹, Y. Sakata¹, Y. Shimada¹, T. Yagi¹

1 Grad. Engineering, Osaka University

3C1-5 Development of the micro-imaging probe for functional deep brain imaging

M. Osanai^{1,2}, T. Suzuki³, A. Tamura^{1,2}, T. Yonemura³, I. Mori¹, Y. Yanagawa^{2,4}, H. Yawo^{2,5},
H. Mushiake^{1,2}

1 Tohoku University Graduate School of Medicine

2 JST, CREST

3 TOYO GLASS Co., Ltd.

4 Gunma University Graduate School of Medicine

5 Tohoku University Graduate School of Life Sciences

3C1-6 Bi-directional interfacing on motor nervous system with RatCar

O. Fukayama¹, M. Takano¹, R. Nakanishi¹, M. Yokota¹, T. Suzuki², K. Mabuchi¹

1 The University of Tokyo

2 National Institute of Information and Communication Technology

3C2 13:00~15:00

神経工学

Organizers: Yasuhiko Jimbo (The University of Tokyo),
Hirokazu Takahashi (The University of Tokyo),
Takafumi Suzuki (NICT)

Session Chairs: Hirokazu Takahashi (The University of Tokyo),
Takafumi Suzuki (NICT)

3C2-1 A novel manipulative approach to neural dynamics and information flow in the human brain

K. Kitajo^{1,2}

1 Rhythm-based brain information processing unit, RIKEN BSI – Toyota Collaboration Center, RIKEN Brain Science Institute

2 Laboratory for Advanced Brain Signal Processing, RIKEN Brain Science Institute

3C2-2 Decoding visual information in monkey IT cortex using deep neural network

R. Hayashi¹, S. Nishimoto^{2,3}

1 System Neuroscience Group, AIST

2 Center for Information and Neural Networks (CiNet), NICT

3C2-3 Functional network structure in auditory cortex for primitive auditory perceptual integration and segregation

T. Noda¹, H. Takahashi^{1,2}

1 The University of Tokyo

2 PRESTO, JST