

新学術領域研究「人工知能と脳科学」第5回領域会議
The 5th Research Area Meeting
Scientific Research on Innovative Areas: Artificial Intelligence and Brain Science
2018.11.12-13

地階大会議室、(株)国際電気通信基礎技術研究所(ATR)

Main Conference Room (GF1), Advanced Telecommunications Research Institute International (ATR)

Monday, 12 November

12:00-13:00 第6回総括班会議 会議室 1F

/ The 6th Administrative Meeting at the Meeting room 1F

*Planned Research Group Principal Investigators and invited guests only

計画研究代表者、学術調査官、評価委員の方は受付へお越し下さい。

13:30-13:35 代表挨拶 / Greetings

口頭発表 / Oral presentation / Presentation 15 mins +討論 / Discussion 5 mins)

13:35-13:55 細谷晴夫 / Haruo Hosoya

【NEDO-AI連携講演 / NEDO-AI project joint session】

脳の顔認識系の計算モデル

Computational models of the face processing system in the primate brain

<A01 計画研究 / A01 Planned Research Group>

13:55-14:15 松尾豊（発表：鈴木雅大） / Yutaka Matsuo (Presenter: Masahiro Suzuki)

ディープラーニングと記号処理の融合による予測性の向上に関する研究

Study for the Advancement of Prediction by Integrating Deep Learning and Symbol Processing

14:15-14:35 銅谷賢治 / Kenji Doya

多階層表現学習の数理基盤と神経機構の解明

Elucidation of the Mathematical Basis and Neural Mechanisms of Multi-layer Representation Learning

14:35-14:55 田中啓治（発表：Nan Li） / Keiji Tanaka (Presenter: Nan Li)

コンフリクトコストに対する調和・不調和情報シーケンス効果の神経基盤の研究

Neural bases of congruency-sequence effects on conflict costs

14:55-15:10 休憩(15分) / Break

15:10-15:30 田中沙織 / Saori Tanaka

【新学術領域研究「思春期主体価値」連携講演 / The science of personalized value development through adolescence: integration of brain, real-world, and life-course approaches project joint session】

<A02 計画研究 / A02 Planned Research Group>

15:30-15:50 松本正幸 / Masayuki Matsumoto

報酬と注意の情報処理に関するドーパミン神経回路機構

Roles of the dopamine system in reward and attention processing

15:50-16:10 斎田貴俊 / Takatoshi Hikida

報酬／目的指向行動の神経回路機構

Neuronal circuit mechanisms of reward/goal-directed behavior

16:10-16:30 森本淳 / Jun Morimoto

自己と他者の動作データからの内部モデルの構築と行動則の獲得

Internal model construction by observing others and policy acquisition through self-learning

16:30- 16:50 五味裕章 / Hiroaki Gomi

潜在的運動における学習適応メカニズムの解明と計算モデル構築

Computational mechanisms of implicit sensorimotor control

17:00-20:00 ポスター発表 &懇親会 ATR内食堂

/ Poster presentation & Banquet at the restaurant

Tuesday, 13 November

<A03 計画研究 / A03 Planned Research Group>

9:00- 9:20 中原裕之 / Hiroyuki Nakahara

脳内他者を生かす意思決定の脳計算プリミティブの解明

Neurocomputational primitives for decision-making with use of models of others' minds

9:20- 9:40 坂上雅道 / Masamichi Sakagami

前頭前野における情報の抽象化と演繹的情報創生の神経メカニズムの研究

Neuronal mechanisms on inductive abstraction and deductive generation of information

9:40-10:00 谷口忠大 / Tadahiro Taniguchi

感覚運動と言語をつなぐ二重分節解析の脳内計算過程の理解と応用

Neural Computation of Double Articulation Analysis integrating sensory-motor information and language processing

10:00-10:20 高橋英彦 / Hidehiko Takahashi

精神疾患における思考の障害の神経基盤の解明と支援法の開発

Understanding of neural basis of thought disorders in psychiatric disorders

10:20-11:40 討論 / Discussion

11:40-12:00 まとめと今後の予定 / Conclusion and Future Schedule

12:00-13:00 昼食 / Lunch

13:00-13:40 ラボツアー / Lab tour

13:40-14:00 休憩(20分)

理研AIPミニワークショップ / RIKEN AIP mini workshop
Neuroscience and Machine Learning for Advanced Intelligence
地階大会議室、(株)国際電気通信基礎技術研究所(ATR)

Main Conference Room (GF1), Advanced Telecommunications Research Institute International (ATR)

14:00 – 14:40 Leonardo L. Gollo (QIMR Berghofer Medical Research Institute, Australia)
脳における位相的複雑さ：統合、脆弱性、ボラティリティ、および時間スケールの階層
Topological complexity in the brain: Integration, fragility, volatility, and a hierarchy of timescales

14:40 – 15:05 下平英寿 / Hidetoshi Shimodaira (Kyoto University / RIKEN AIP)
シフト付内積類似度による関係性の特徴量の学習
Learning features for relationships with shifted inner product similarity

15:05 – 15:20 休憩(15分) / Break

15:20 – 16:00 Jorge Riera (Florida International University, USA)
非顆粒性皮質におけるパフォーマンスマニタリングを評価するためのマルチスケールアプローチ
A multi-scale approach to evaluate performance monitoring in agranular cortex

16:00 – 16:25 川鍋一晃 / Motoaki Kawanabe (RIKEN AIP / ATR)
EEGからfMRI安静時ネットワークの活動を推定する機械学習法
A machine learning approach to estimate fMRI resting-state network activities from EEG

16:25 – 16:50 山下宙人 / Okito Yamashita (RIKEN AIP / ATR)
ヒト脳の事象関連ダイナミクスを理解するためのマルチモーダル統合アプローチ
Multi-modal integration approach to understand event-related dynamics of human brain

1F

脳情報研究所
Computational Neuroscience Laboratories

認知機構研究所
Cognitive Mechanisms Laboratories

脳情報解析研究所
Neural Information Analysis Laboratories

理化学研究所

人工知能拠点

食堂
Cafeteria

トレーニングルーム
Exercise Facilities

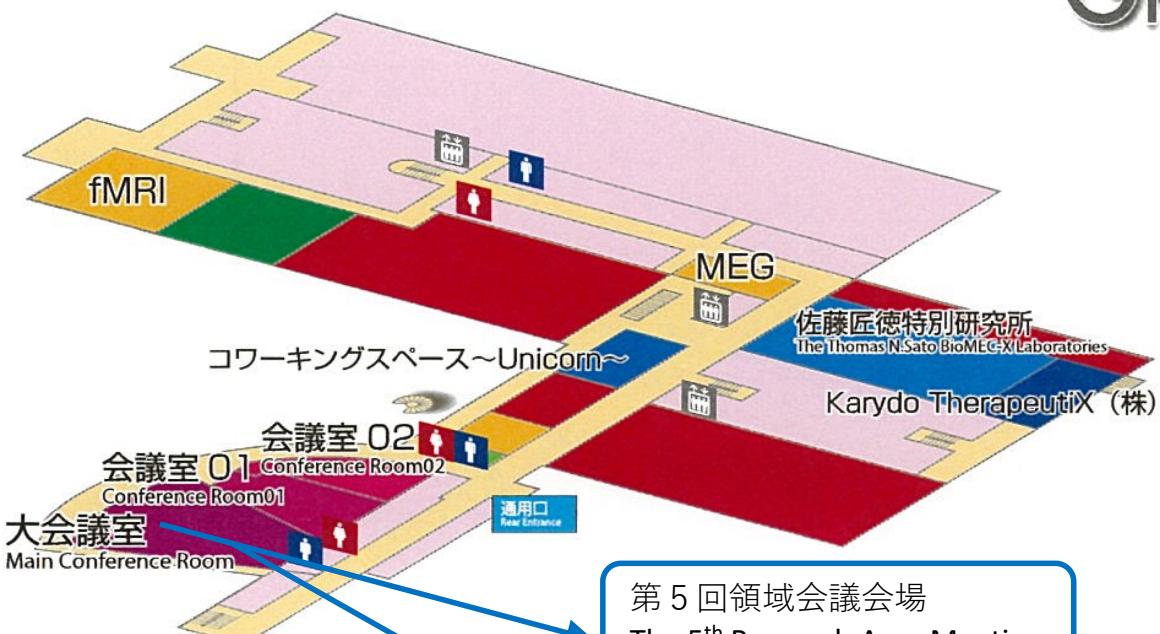
玄関
Main Entrance

総合案内
Reception

ポスター発表&懇親会会場
Poster presentation & Banquet

ATR館内図

G F



第5回領域会議会場
The 5th Research Area Meeting

理研AIPミニワークショップ会場
Riken AIP Mini workshop

**新学術領域研究「人工知能と脳科学の対照と融合」ポスター演題
Scientific Research on Innovative Areas: Artificial Intelligence and
Brain Science Poster Presentation List**

<A01>

<公募班/Publicly Research Group>

A01-01 (Board No.1)

How and where is vision transformed to value?: A combinatorial study of fMRI and deep learning
Junichi Chikazoe, Quang Trung Pham, Takaaki Yoshimoto, Haruki Niwa, Norihiro Sadato
(Dr. Chikazoe group)

A01-02 (Board No.2)

Unsupervised learning of temporal information streams in networks of dendritic neurons
Toshitake Asabuki, Tomoki Fukai
(Dr. Fukai group)

A01-03 (Board No.3)

Preparatory activity in M2 encodes future action and its value
Kosuke Hamaguchi
(Dr. Hamaguchi group)

A01-04 (Board No.4)

Convolutional nonlinear ICA for sample-efficient invariant feature learning
Jun-ichiro Hirayama, Aapo Hyvärinen, Motoaki Kawanabe
(Dr. Hirayama group)

A01-05 (Board No.5)

Self-Organization of the Spatio-Temporal Structures in Generative Neural Networks
Hiroki Kojima, Takashi Ikegami
(Dr. Ikegami group)

A01-06 (Board No.6)

Spatio-temporal patterns in internal states of memory-augmented neural networks
Yuma Kajihara, Takashi Ikegami
(Dr. Ikegami group)

A01-07 (Board No.7)

Predictive coding on auditory processing: Spatiotemporal structure of signal flow in whole-cortical electrocorticograms
Misako Komatsu
(Dr. Komatsu group)

A01-08 (Board No.8)

Inferring networks from neuronal signals and predicting emergent activity patterns
Shigeru Shinomoto, Ryota Kobayashi, Takaaki Aoki
(Dr. Shinomoto group)

A01-9 (Board No.9)

Identifying external and internal origins of event occurrences
Kazuki Fujita, Alexey Medvedev, Shinsuke Koyama, Renaud Lambiotte,
Shigeru Shinomoto
(Dr. Shinomoto group)

A01-10 (Board No.10)

Decoding of complex neural representations in prefrontal cortex
Takanori Uka, Hironori Kumano
(Dr. Uka group)

A01-11 (Board No.11)

Development of novel artificial intelligence using ECoG big data
Takufumi Yanagisawa
(Dr. Yanagisawa group)

A01-12 (Board No.12)

Continual Learning of Heterogeneous Tasks on a Single Network
Keiji Yanai, Asato Matsumoto, Wataru Shimoda
(Dr. Yanai group)

<計画班/ Planned Research Group>

A01-13 (Board No.13)

Experimental and theoretical investigation of Bayesian inference across multiple layers in somatosensory cortex
Yuzhe Li Y, Kenji Doya
(Dr. Doya group)

A01-14 (Board No.14)

Efficient Noise-Tolerant Policy Evaluation by GRAPE
Tadashi Kozuno, Dongqi Han, Kenji Doya
(Dr. Doya group)

A01-15 (Board No.15)

Total stochastic gradient algorithms with application to model-based reinforcement learning
Paavo Parnas, Kenji Doya
(Dr. Doya group)

A01-16 (Board No.16)

Prefrontal cortex associates with human cognitive dynamics in the congruency-sequence effect
Nan Li, Kang Cheng, R. Allen Waggoner, Keiji Tanaka
(Dr. Tanaka group)

A01-17 (Board No.17)

Studying the Human Face-Selective Cortex with Columnar Resolution fMRI
Topi Tanskanen, Chien-Hui Kao, Roy Allen Waggoner, Kenichi Ueno, Kang Cheng
Keiji Tanaka
(Dr. Tanaka group)

<A02>

<公募班/Publicly Research Group>

A02-01 **(Board No.18)**

Development of a bidirectional tracing method combining anterograde tract-tracing and retrograde transneuronal labeling
Ken-ichi Inoue, Soshi Tanabe, Kei Kimura, Masahiko Takada
(Dr. Inoue group)

A02-02 **(Board No.19)**

Neural Correlates of Exploration and Exploitation during motor adaptation
Yuki Ueyama, Taisei Sugiyama, Nicolas Schweighofer, Hiroshi Imamizu, Jun Izawa
(Dr. Izawa group)

A02-03 **(Board No.20)**

The effects of subjective value for meta-learning in visuomotor transformation
T. Sugiyama, N. Schweighofer, Jun Izawa
(Dr. Izawa group)

A02-04 **(Board No.21)**

Cooperative and Competitive Reinforcement and Imitation Learning for a Mixture of Heterogeneous Learning Modules
Eiji Uchibe
(Dr. Uchibe group)

<計画班/ Planned Research Group>

A02-05 **(Board No.22)**

Different spatial eye-hand coordination forms distinct motor memories in implicit visuomotor adaptation
Naotoshi Abekawa, Hiroaki Gomi
(Dr. Gomi group)

A02-06 **(Board No.23)**

Does self-motion velocity estimation for implicit adjustment of walking-speed differ from that for self-motion perception?
Shinya Takamuku, Hiroaki Gomi
(Dr. Gomi group)

A02-07 **(Board No.24)**

Statistical analysis of optic flow induced by body motion characterizing OFR and MFR
Daiki Nakamura, Hiroaki Gomi
(Dr. Gomi group)

A02-08 **(Board No.25)**

Characteristic whisker movements reflect the internal state of mice related to reward anticipation
Kohta Mizutani, Jumpei Ozaki, Takatoshi Hikida, Junichiro Yoshimoto,
Takayuki Yamashita
(Dr. Hikida group)

2018/11/9 Updated

A02-09 (Board No.26)

On-line control mechanisms during reaching: effect of cortical lesion
Kohta Mizutani, Jumpei Ozaki, Takatoshi Hikida, Junichiro Yoshimoto,
Aya Takemura, Naotoshi Abekawa, Hiroaki Gomi
(Dr. Hikida group)

<A03>

<公募班/Publicly Research Group>

A03-01 (Board No.27)

Dialogue between predictive coding and brain mechanism for autonomic inference
Yutaka Komura
(Dr. Komura group)

A03-02 (Board No.28)

Social context segmentation analysis in a primate model of Autism Spectrum
Disorder
Koki Mimura, Jumpei Matsumoto, Daichi Mochihashi, Kenichiro Shimatani,
Takafumi Minamimoto
(Dr. Mimura group)

A03-03 (Board No.29)

Reinforcement learning is impaired with obsessive-compulsive and schizotypal traits
Shinsuke Suzuki, Kentaro Katahira, Yuichi Yamashita
(Dr. Suzuki group)

A03-04 (Board No.30)

Neural basis of body image disturbance
Yumi Hamamoto, Shinsuke Suzuki, Motoaki Sugiura
(Dr. Suzuki group)

A03-05 (Board No.31)

Feature extraction from voxel-based resting state fMRI using a deep convolution
network
Yuki Hashimoto, Yuichi Yamashita
(Dr. Yamashita group)

ポスター ボード サイズ：幅 90cm × 高さ 210cm

最大 ポスター サイズ：幅 90cm × 高さ 180cm

*右上部のパネル番号(20cmx20cm)スペースと足部分 10cm を避けてください。

ポスター発表者リストと会場レイアウト図にて、ポスター掲示指定番号をご確認ください。

対応するポスター ボードにポスターを掲示ください。押しピンは事務局にてご用意いたします。

ポスター セッションは、ATR 内食堂にて懇親会と同時に開催されます。ポスター掲示は、13 時以降に掲示してください。ポスター発表終了後(20 時)、速やかに剥がしていただき、お持ち帰りください。

Poster board size: Width 90cm Height 210cm

Maximum poster size: Width 90cm Height 180cm

*Please avoid the space for the poster number (20cmx20cm) and the lower part (10cm legs) of the panel.

Please see the presenters' list and the layout of the restaurant.

2018/11/9 Updated

Please verify your poster number from the poster presenters' list. Be sure to identify the appropriate board number for your poster. Thumbtacks will be available onsite for mounting the posters. The poster session will take place during the banquet at the restaurant.

Posters may be set up after 14:55 and have to be removed by 20:00.

