RIKEN CENTER FOR ADVANCED INTELLIGENCE PROJECT & NICOLAUS COPERNICUS UNIVERSITY WORKSHOPS 2023

SEPTEMBER 25-27, 2023

NICOLAUS COPERNICUS UNIVERSITY, TORUŃ, POLAND

SEPTEMBER 25, 2023
Second International Workshop on Complex Systems Science and Health Neuroscience

Workshop organizing committee
Mihoko OTAKE-MATSUURA, Ikuko TSUMURA, and Tomasz M. RUTKOWSKI, RIKEN AIP, Tokyo, Japan
Tomasz KOMENDZIŃSKI and Bibianna BAŁAJ, Nicolaus Copernicus University, Toruń, Poland

WORKSHOP CHAIRS: Alexandra WOLF & Ewa RATAJCZAK

- 7:50~8:00 Radosław SOJAK Welcome

Session #1: Social Interaction and Communication

- 8:00~8:20 Mihoko OTAKE-MATSUURA Conversation Assistive Technology: Face to Face, Dialogue System, and Remote Communication
- 8:20~8:40 Arkadiusz GUT Social and Cognitive Functions of Self-talk: Cross-cultural Research
- 8:40~9:00 Hikaru SUGIMOTO Neural Mechanisms of How Cognition and Emotion are Modulated in Social Interactions
- 9:00~9:20 Takuya SEKIGUCHI How Conversational Data Benefit Cognitive Intervention Research

Session #2: Advances in Cognitive Diagnosis and Neurophysiological Assessment

- 9:40~10:00 Bibianna BAŁAJ Mental Rotation in Cognitive Diagnosis
- 10:00~10:20 Alexandra WOLF Eye-tracking Paradigm for the Assessment of Mild Cognitive Impairment
- 10:20~10:40 Włodzisław DUCH Recurrence Analysis of EEG Signals
- 10:40~11:00 Ewa RATAJCZAK EEG Neurodynamics of Heart Rate Variability Biofeedback

Session #3: Innovations in Neurobiomarkers, Healthcare Neuroscience, and Rehabilitation
+ 'Walking Through' Place Perception: Understanding the Dynamics of Spatial Cognition

- 11:20~11:40 Tomasz M. RUTKOWSKI Network Neuroscience Dementia Neurobiomarker with ML Support
- 11:40~12:00 Tomasz KOMENDZIŃSKI Health Neuroscience, Deep Medicine and CARES Project
- 12:00~12:20 Fabien LOTTE Brain-computer Interfaces-based Motor and Cognitive Rehabilitation
- 12:20~12:40 Natalia PAWLACZYK & Bartłomiej KILJANEK From the Foot to the Brain

Poster Session 14:00~15:00

- Atsushi TAKAHASHI & Ikuko TSUMURA When Considering Higher Education in the Sciences, male and female students Place Emphasis on Different Factors; a Questionnaire Survey Reveals
- Lin GU Continuous Learning in Both Medical and General Domains
- Marc WELTER EEG Oscillatory Correlates of Aesthetic Experience
- Kornkanok TRIPANPITAK Predictive EEG Biomarkers for Cognitive Impairment
- Sébastien RIMBERT Improving Motor Imagery Detection with a BCI Based on Median Nerve Stimulations

SEPTEMBER 26, 2023
Workshop on Mathematical Foundations of Machine Learning

Workshop Organizing Committee
Marek GROCHOWSKI, Nicolaus Copernicus University, Toruń, Poland
Ikuko TSUMURA and Tomasz M. RUTKOWSKI, RIKEN AIP, Tokyo, Japan

WORKSHOP CHAIRS: Masashi SUGIYAMA & Tomasz PIOTROWSKI

- 7:50~8:00 Wojciech WYSOTA Welcome

Session #1

- 8:00~8:20 Michał WOŹNIAK Classifier Learning Using Multi-objective Optimization - Threats to Validity
- 8:20~8:40 Renato L. G. CAVALCANTE Convergence of Fixed Point Iterations of Positive Concave Mappings with Applications to Design of Machine Learning Algorithms
- 8:40~9:00 Tomasz PIOTROWSKI Fixed Points of Nonnegative Neural Networks

Session #2

- 9:20~9:40 Minh HA QUANG Fisher-Rao Metric and Infinite-dimensional Divergences for Gaussian Processes
- 9:40~10:00 Qibin ZHAO Efficient Machine Learning with Tensor Networks
- 10:00~10:20 Rafał ZDUNEK Tensor Networks for CNN Compression
- 10:20~10:40 Chao LI Discovering Optimal Tensor Network Architectures: An Exploration of Tensor Network Structure Search (TN-SS)

Session #3

- 11:00~11:20 Przemysław BIECEK Explainable AI: Opportunities and Challenges
- 11:20~11:40 Tomasz TRZCIŃSKI Zero-waste Machine Learning
- 11:40~12:00 Zhen-Yu ZHANG Towards Continuous Adaptation in Non-stationary Environments
- 12:00~12:20 Krzysztof RYKACZEWSKI Exploring the Fixed Points in Cone Mapping: Enhancements to Neural Network Applications

Session #4

- 13:20~13:40 Masashi SUGIYAMA Recent Advances in Reliable Machine Learning
- 13:40~14:00 Ryuichiro HATAYA Stable Gradient-based Hyperparameter Optimization

Poster Session 14:00~15:00

- Yuwei SUN Coordination in Modular and Decentralized Neural Networks
- Mateusz GABOR Scalable Deep Equilibrium Models
- Jędrzej KOZAL Continual Learning
- Yivan ZHANG Categorification of Disentangled Representation Learning
- Shue CHEN Robust Contrastive Learning and Its Applications
- Sherief HASHIMA Bandit Formulations for Hybrid Band Wireless Networks
- Maria Sayu YAMAMOTO Robust Riemannian classifier for multimodal distribution of SPD matrices

SEPTEMBER 27, 2023
LAB VISITS & RESEARCH DISCUSSIONS AT NCU

INSTITUTE OF PSYCHOLOGY
39 YURI GAGARIN STREET | ROOM 101 | TORUŃ

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Wydział Filozofii i Nauk Społecznych