

# Preface

This volume is part of the four-volume proceedings of the 23rd International Conference on Neural Information Processing (ICONIP 2016) held in Kyoto, Japan, during October 16–21, 2016, which was organized by the Asia-Pacific Neural Network Society (APNNS, <http://www.apnns.org/>) and the Japanese Neural Network Society (JNNS, <http://www.jnns.org/>). ICONIP 2016 Kyoto was the first annual conference of APNNS, which started in January 2016 as a new society succeeding the Asia-Pacific Neural Network Assembly (APNNA). APNNS aims at the local and global promotion of neural network research and education with an emphasis on diversity in members and cultures, transparency in its operation, and continuity in event organization. The ICONIP 2016 Organizing Committee consists of JNNS board members and international researchers, who plan and run the conference.

Currently, neural networks are attracting the attention of many people, not only from scientific and technological communities but also the general public in relation to the so-called Big Data, TrueNorth (IBM), Deep Learning, AlphaGo (Google DeepMind), as well as major projects such as the SyNAPSE Project (USA, 2008), the Human Brain Project (EU, 2012), and the AIP Project (Japan, 2016). The APNNS's predecessor, APNNA, promoted fields that were active but also others that were leveling off. APNNS has taken over this function, and further enhances the aim of holding technical and scientific events for interaction where even those who have extended the continuing fields and moved into new/neighboring areas rejoin and participate in lively discussions to generate and cultivate novel ideas in neural networks and related fields.

The ICONIP 2016 Kyoto Organizing Committee received 431 submissions from 38 countries and regions worldwide. Among them, 296 (68.7 %) were accepted for presentation. The first authors of papers that were presented came from Japan (100), China (78), Australia (22), India (13), Korea (12), France (7), Hong Kong (7), Taiwan (7), Malaysia (6), United Kingdom (6), Germany (5), New Zealand (5) and other countries/regions worldwide.

Besides the papers published in these four volumes of the Proceedings, the conference technical program includes

- Four plenary talks by Kunihiro Fukushima, Mitsuo Kawato, Irwin King, and Sebastian Seung
- Four tutorials by Aapo Hyvarinen, Nikola Kazabov, Stephen Scott, and Okito Yamashita,
- One Student Best Paper Award evaluation session
- Five special sessions, namely, bio-inspired/energy-efficient information processing, whole-brain architecture, data-driven approach for extracting latent features from multidimensional data, topological and graph-based clustering methods, and deep and reinforcement learning
- Two workshops: Data Mining and Cybersecurity Workshop 2016 and Workshop on Novel Approaches of Systems Neuroscience to Sports and Rehabilitation

The event also included exhibitions and a technical tour.

Kyoto is located in the central part of Honshu, the main island of Japan. Kyoto formerly flourished as the imperial capital of Japan for 1,000 years after 794 A.D., and is presently known as “The City of Ten Thousand Shrines.” There are 17 sites (13 temples, three shrines, and one castle) in Kyoto that form part of the UNESCO World Heritage Listing, named the “Historic Monuments of Ancient Kyoto (Kyoto, Uji and Otsu Cities).” In addition, there are three popular, major festivals (Matsuri) in Kyoto, one of which, “Jidai Matsuri” (The Festival of Ages), was held on October 22, just after ICONIP 2016.

We, the general chair, co-chair, and Program Committee co-chairs, would like to express our sincere gratitude to everyone involved in making the conference a success. We wish to acknowledge the support of all the sponsors and supporters of ICONIP 2016, namely, APNNS, JNNS, KDDI, NICT, Ogasawara Foundation, SCAT, as well as Kyoto Prefecture, Kyoto Convention and Visitors Bureau, and Springer. We also thank the keynote, plenary, and invited speakers, the exhibitors, the student paper award evaluation committee members, the special session and workshop organizers, as well as all the Organizing Committee members, the reviewers, the conference participants, and the contributing authors.

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