APNNS NEWS

Autumn in Kyoto City -- Shinnyodo (Shinsho-Gokurakuji temple)
See Page 10: Information on the 23rd International Conference on Neural Information Processing (ICONIP), the Annual Conference of Asia-Pacific Neural Network Society (APNNS)

Vol.1, No.1 (May 2016)

Table of Contents

1. President's message

Let's Start a New Era of Neural Networks

Akira Hirose, President, APNNS

The Asia-Pacific Neural Network Society (APNNS, http://www.apnns.org/) has started on January 1, 2016, as the successor to Asia-Pacific Neural Network Assembly (APNNA). It aims at local and global promotion of neural-network research and education with emphasis on:

(1) Diversity: Support local events planned and held in affiliate countries/regions technically and/or financially to promote the formation of neural network communities in the countries/regions by laying weight on diversity.

(2) Transparency: Clarify the appointment and roles of governing board members and chairs to make the society clearer to encourage young people and activate emerging fields.

(3) Stability: Conduct a part of routine works in holding ICONIP conference to improve and maintain the quality of papers presented there and to help small-researcher-number countries/regions to hold ICONIP.

The predecessor APNNA (http://www.apnna.net/) was assembled in 1993 by involving 13 countries and regions just to hold International Conference on Neural Information Processing (ICONIP) every year with each local organizing committee. Any fields and areas in science and technology have its up-and-downs more or less. APNNA has been promoting not only active fields but also others at leveling off. In APNNS, we enhance the function in holding social interaction events where the members who extended and moved into new/neighbor areas come back to talk livelily, discuss widely, to generate and cultivate novel seeds in neural networks and related fields.

Society members are invited to utilize APNNS for internationalization of local activities such as workshops, seminars, schools and ad-hoc technical meetings in cooperation with APNNS. Please hold such activities jointly or in series with ICONIP. Then it is easy to hold such events with international people and to provide them of the event's ideas, essence and technical know-how. The community will extend. You may choose another schedule independent of ICONIP. Please try out!

As a starter, let's get together at ICONIP 2016 Kyoto, the first APNNS ICONIP, held from October 16 to 21 in Kyoto, Japan. See you soon!

2. Society Structure

Irwin King, VP Administration

Dear APNNS Members,

After years of planning and discussing, the APNNS EXCO is pleased to share with you a few highlights on the new APNNS structure based on the newly created bylaws. A complete APNNS Bylaws (Version 1.3) is available at http://www.apnns.org/ .

The original goals for the APNNS' bylaws given to the APNNA Bylaws Task Force were

● To create a new structure based on our already strong APNNA's tradition with consideration with current and future needs of its members

● To reflect the diverse interests from different regional and national technical communities and grow this community together

● To interface with other international societies with similar interests in order to enhance the value of the community

To address these points, the APNNA Bylaws Task Force labored over the bylaws through months of meeting and discussions to ensure that the bylaws is built to last for the uniqueness of the neural network technical communities in the Asia-Pacific region.

One of the cornerstones in the bylaws is the Governing Board structure of APNNS.   To illustrate the goal to reflect the diversity and also balance in the Asia-Pacific region, the bylaws set specific guidelines to make up of the two-class Governing Board members with the Elected Governors and Country/Region Governors.   The Elected Governors are elected from the general pool of available members.   Moreover, the maximum authorized number shall not be more than 12 and the maximum authorized number of Elected Governors for each country/region shall not be more than two.   Country/Region Governors shall be recommended by Countries/Regions-at-Large, defined as the countries/regions whose regular members are more than a certain number as specified by the Governing Board. The authorized number of Country/Region Governors for a Country/Region-at-Large shall not be more than one. Lastly, the number of Countries/Regions-at-Large may be varied from time to time by resolution of the Board of Governors, provided that the authorized number of Elected Governors and Country/Region Governors in total shall be around 25. With this new structure, APNNS aims to be inclusive and at the same time sensitive to the various needs of the representations of its members.

The nomination procedures for the Board of Governors and President-elect are through a Nomination Committee (NC). The NC shall nominate a number of candidates for Elected Governors and at least two candidates for the Office of President-elect. Each regular member (not student member) has one vote.   Those eligible candidates for Elected Governors who receive the highest number of votes, up to the number of Elected Governors to be elected, shall be elected as Elected Governors of APNNS.   Similarly, the eligible candidate for the Office of President-elect who receives the highest number of votes for such Office shall be elected as President-elect of APNNS.

We have also expanded and further clarified the roles of the APNNS Executive Committee (EXCO), which consists of the President, the President-elect, and four Vice-presidents (VPs), VP of Administration, VP of Finance, VP of Membership, and VP of Conference to oversee the day-to-day operation of APNNS. The President and President-elect shall hold office for the term of one year, starting on January 1 of the year. For 2016, the EXCO consists of Prof. Akira Hirose, President; Prof. Soo-Young Lee, President-elect; Prof. Irwin King, VP of Administration, Prof. Seiichi Ozawa, VP of Finance, Prof. Jonathan Chan, VP of Membership, and Prof. Derong Liu, VP of Conference.

The EXCO would like to thank the Ad Hoc APNNA Bylaws Task Force members: Prof. Akira Hirose (Chair), Prof. Jonathan Chan, Prof. Irwin King, Prof. Minho Lee, Prof. Derong Liu, and Prof. Seiichi Ozawa for their significant commitment and efforts in making the APNNS Bylaws a reality. I would also like to thank the APNNA and APNNS Governing Board Members for their continuing support to seeing the process to its fruition.

It is our hope and belief that with the new structure, APNNS will continue to foster strong supports from its members of diverse communities to expand and develop successfully the field of neural networks, computational intelligence, and other related fields in the years to come.

| Akira Hirose | Soo-Young Lee | Irwin King | Seiichi Ozawa | Jonathan Chan | Derong Liu |
| President | President-elect | VP of Administration | VP of Finance | VP of Membership | VP of Conference |

Fig. 2.1   APNNS Executive Committee (EXCO) starting members.

3. Membership Information

Jonathan Chan, VP Membership

As the aim of APNNS is to provide a forum for scientific exchange of information and knowledge related to brain processes and their applications, anyone who is interested and satisfies the membership criteria are welcome to join our society. Membership consists of *regular* and *student* members. A *regular* member is someone who has either satisfied APNNS-specified educational requirements and/or demonstrated professional competence in APNNS-designated fields of interest. More detailed information can be found at the APNNS Bylaws page at http://www.apnns.org/bylaws.html, under Article 3 Members.

The benefits of an APNNS membership include skills and professional development through exposure at our flagship ICONIP conference, access to a large network of experts in the neural networks and related fields, and discounts at ICONIP and other APNNS conferences as well as other APNNS technically co-sponsored conferences.

Fig. 3.1   Banquet in ICONIP 2015 Istanbul.

A paid APNNS membership is an annual one based on the calendar year of January 1 to December 31. The membership fee is 15 USD for a regular member and 10 USD for a student member. The obvious incentive to join APNNS prior to the registration deadline of ICONIP is to receive a significant discount. Besides, joining before August 1 would enable a *regular* member to vote for the President-Elect in the annual election as well as the Elected Governors for the following year. Note that ICONIP delegates are entitled to a free APNNS membership for the

following calendar year. Regular registrant would receive a regular membership waiver and student registrants would receive a student membership waiver. However, the delegate needs to send an email to membership@apnns.org to receive the membership waiver. For example, as a delegate of ICONIP 2015 in Istanbul, you are eligible for a 2016 APNNS membership waiver by opting to join APNNS via email with the following information.

```
_____
To: membership@apnns.org

Subject: membership application
(You must specify in Subject)

Your Name (As shown in the registration of ICONIP 2015; Use capital letters for
LAST/FAMILY name)

Your Present Affiliation

Your email address

Country or Region of Your Residence (or Institute)

Your Paper number or Registration number at ICONIP 2015 (please specify which
number)

Your Student ID number (If you apply for a student member, please indicate your
student ID number. Students who currently pursue an academic degree, such as
bachelor, master or doctor, and have a valid ID of a college, an institute, or
a school are eligible for the application to student member.)
_____
```

As of December 31, 2015, APNNS has a total of 243 members spanning over 15 countries/regions globally. Of which just over 10% are student members. We look forward to growing APNNS steadily, especially among students, and spreading the knowledge and expertise in the neural network and related areas in the Asia-Pacific region and beyond.

Fig. 3.2   Small excursion in ICONIP 2013 Daegu.

Finally, APNNS is eagerly looking for members who would like to volunteer and get involved. E.g. formation of a special interest group (SIG) or joining a specific APNNS committee. Please feel free to contact any of the EXCO or Governing Board members if you are interested. See you in Kyoto!

Fig. 3.3   Snapshots in recent ICONIP conferences, namely, 2015 Istanbul, 2014 Kuching, 2013 Daegu, 2012 Doha, 2011 Shanghai and 2010 Sydney.

4. Column: AlphaGo and Sedol Lee Heralded a New Era

Soo-Young Lee, President-Elect

As far as the human society survives, March 9th, 2016, will be remembered as the day when an intelligent machine, AlphaGo, first defeated a top-class human player, Sedol Lee, at Go game. It may also be remembered as a day heralding a new era of human-machine co-existing society. Since the Go game is considered as the most intelligence-demanding game even for highly intelligent people, the defeat of world's fourth-rank player at the time and also first-ranked for many previous years had generated public understanding that the era of intelligent machines is coming, if not already has arrived. Many industries showed their interests in artificial intelligence (AI) based on neural information processing, and Korean Government also announced a plan to fund about 800 million US dollars on research and development for the next five years.

In the Sumerian mythology, humans were created to free the gods from difficult and unending labor. The low-ranking gods, Anunnaku and Igigu, had undertaken the toil to provide a decent living for the other gods. After a long and grievous suffering, these lesser gods eventually rioted, and the High Council of Gods ordered the Mother-goddess, Ninhursag or Nintu, to 'create human beings to bear the yoke.' To serve gods better, these human servants needed to have some degree of intelligence.

History repeats itself. Now it is the humans who are creating intelligent machines to serve their own society. After all, the word "robot" comes from the Slavic word "robu" meaning slave. Today, automatic doors greet us at every entrance, business is done by computer agents alone, and soon cars will drive themselves. My smartphone serves as 'my-other-half' who knows more about "me" than I do! In the near future, increasingly intelligent agents will work with human beings, for human beings, at offices, at homes, at stores, with schools, as well as in factories.

When Ninhursag created humans, she did not start from nothing. Naturally, she utilized what was available. She borrowed something from the gods for the humans. Yet even with this approach, she was only able to make a perfect human, Adama, after many trials

and errors. Similarly, many researchers in AI would like to learn from Mother Nature. Especially, AI researchers have tried to understand information processing mechanisms active in the human brain, and to model these mechanisms directly in designing intelligent machines. One obstacle slowing this approach is that brain signal measurement technologies are limited and do not provide enough detail functional information about the circuits of information processing. Still, we must endeavor to understand the mechanisms by filling in the blind-spots with information theory, and begin to understand how to "borrow" something from human for the intelligent machines of tomorrow.

The human brain receives information from five types of sensors, and from this input generates speech and various other actions. Between these input and output processes, the human brain structures the threads of the information flow through several important cognitive functions, such as knowledge acquisition, identity formation, situation awareness, and decision making. These high-level cognitive functions represent the active goals of current AI research.

As with the Sumerian gods and their servants, it is critical that our artificial agents learn to understand both explicit and implicit human intention. Also, knowledge acquisition should be autonomous. Artificial learning agents should be able to learn without human intervention. They should learn to ask the questions necessary to improve their knowledge, incorporating their answers into existing knowledge systems. The ability to use language is tightly coupled to these knowledge systems. Self-consciousness and personal identity might emerge as these internal states change.

In the near future, intelligent machines will not be conscious, i.e., based on weak artificial intelligence technology. They will be trained for specific applications. For example, a Medical Assistant should be able to learn the knowledge of medical doctors from medical textbooks, and then employ this knowledge in helping human beings. Similarly, an Office Assistant would help with office jobs such as coordinating telephone calls, creatively employing data searches to solve freely anticipated scheduling problems, and preparing documents for meeting attendees and board members.

It is not necessary to be afraid of job losses due to intelligent machines. Even with the help of less-intelligent machines, the Industrial Revolution resulted in much higher production efficiency and a rising quality of human life. With the help of intelligent machines, humans will be able to work with much higher productivity, while employing remaining time for more creative and enriching activities.

To serve human better, intelligent machines will choose what to learn, and learning

machines eventually become conscious and have self-identity. Then, the era of strong AI will come. Of course, social disruption due to self-conscious machine technologies remains one of the most controversial issues affecting human civilization. Some of the smartest scientists and engineers alive today, including Steve Hwaking and Bill Gates, are concerned with a possible conflict between human and their intelligent machine.

However, intelligent machine is by no means more dangerous than human. As Microsoft's chatterbot Tay had proven, even intelligent agents with weak AI may become bad by learning bad examples especially from bad people. In facts weak AI is more susceptible to inappropriate human than strong AI. Even though some people may regard intelligent machines as mere slaves or toys, there always are other good people. Although intelligent machine without consciousness may simply follow inappropriate people, self-conscious machines may find that the co-existence will be more desirable than mutual destruction. Provided that human beings treat intelligent machines as friends and family members from different worlds, rather than as dumb machines to be abused, we will see a peaceful human-machine society prosper together. This does not mean that an intelligent machine will always agree with human. Just as children may disagree with parents, human beings are still able to raise children and build happy families over the generations. Children learn from parents, and eventually parents learn from children.

It is worthwhile to note that the play of Go game and therefore AlphaGo do not necessarily represent human intelligence. The game is very simple in principle, and requires to evaluate results of many possible future sequences. The main difficulty comes from the huge search space beyond the capability of any single people and even 1000 computers with graphic processors. Therefore, brute force search is not feasible and, to reduce the search space, both human and AlphaGo utilize pattern recognition (or intuition), which is clearly an important capability of intelligence. However, AlphaGo had a great advantage over human player on fast computation and memory for the searching. I wonder how much the pattern recognition capability itself had contributed for the success of AlphaGo. Maybe the success came from the integration of human-like intelligence and non-human computing capabilities.

As demonstrated by the Go game between human and AplphGo, the co-existence of human and intelligent machines is not an option but a necessity, especially for aging society with more old than young people. Intelligence to machines, freedom with to mankind!

(Some part of this article had been included in an author's article at Postech Times, December 2015.)

5. ICONIP 2016 Kyoto

Seiichi Ozawa, VP Finance, Co-General Chair ICONIP 2016 Kyoto

5.1 Kyoto in autumn

The 23rd International Conference on Neural Information Processing (ICONIP 2016) will be held in Kyoto, Japan during October 16-21, 2016. The venue of ICONIP 2016 is Kyoto University Clock Tower Centennial Hall, which is located in the north-east region of Kyoto city.

Kyoto is located in the central part of the island of Honshu, Japan. Kyoto formerly flourished as the imperial capital of Japan as long as 1,000 years after 794 A.D., and known as "The City of Ten Thousand Shrines." There are 17 sites (13 temples, 3 shrines, and 1 castle) in Kyoto that form the UNESCO World Heritage Listing named as the "Historic Monuments of Ancient Kyoto (Kyoto, Uji and Otsu Cities)". In addition, there are the three major festivals (Matsuri) in Kyoto, one of which, called "Jidai Matsuri", will be held in October 22nd, after ICONIP 2016.

ICONIP 2016 will provide a high-level international forum for scientists, researchers, industrial professionals, and students worldwide to present state of art research
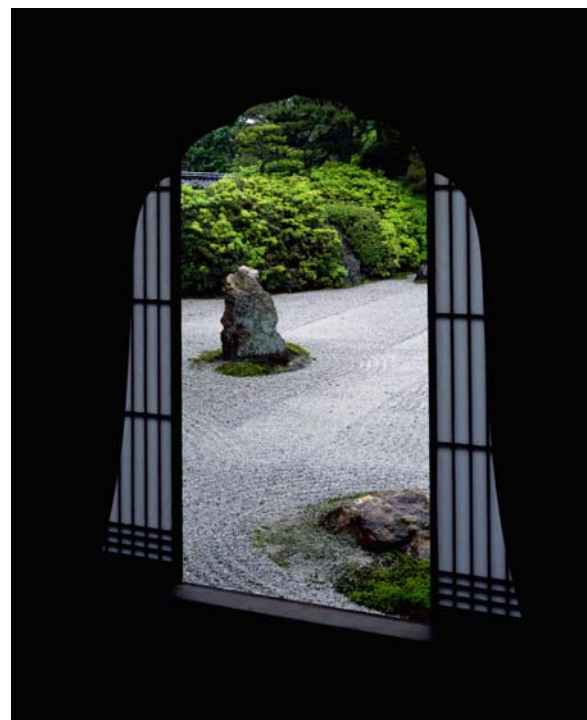

Fig. 5.1   (top) Autumn foliage in Kyoto and (bottom)   Kenninji temple rock garden.

results, address new challenges, and discuss trends in neural information processing and applications. This conference will feature invited plenary talks by world-renowned scholars in the areas of neural network theory and applications, computational neuroscience, machine learning and others. In addition to regular technical sessions with oral and poster presentations, the conference program will include special sessions and tutorials on topics of current interest.

ICONIP 2016 is the first international conference of The Asia-Pacific Neural Network Society (APNNS), which will be established as the first neural network society for Asia-Pacific countries in November, 2015. Let's get together to celebrate this memorial event of our new society in Kyoto!

Fig. 5.2   Togetsukyo bridge and Arashi-yama.

5.2 Conference information

The 23rd International Conference on Neural Information Processing (ICONIP 2016)

Clock Tower Centennial Hall, Kyoto University, Kyoto, Japan (16-21 Oct 2016)

http://www.iconip2016.org/

Co-Organizers:

Asia Pacific Neural Network Society (APNNS), Japanese Neural Network Society (JNNS)

Sponsors:

KDDI Foundation, NICT International Exchange Program, SCAT

Important Dates

Deadline for paper submissions:	15 May 2016
Notification of acceptance:	7 July 2016
Camera-ready paper submission:	22 July 2016
Deadline for author registration:	22 July 2016
Deadline for early registration:	7 August 2016
Conference days:	16-21 October 2016 (Technical Tour: 21 Oct 2016)

Instruction for Paper Submissions

Please prepare your paper in the format as the sample paper for Lecture Notes in Computer Science (LNCS) include reference format. In the Information for LNCS Authors site, you are able to download the source files including LaTeX2e class file, sample file, word template.

Topics of interest include, but not limited to:

Theory & Algorithms:

Neurodynamics, Machine learning, Deep neural networks, Computational intelligence, Pattern recognition, Computer vision, Speech processing, Time series analysis, Reinforcement learning, Bayesian networks, Computational & Cognitive

Neurosciences:

Sensory perception, Motor control, Decision making, Social cognition, Emotion and reward, Neuroeconomics, Computational psychiatry, Brain-machine interface, Neural data analysis

Applications:

Big data analysis, Robotics and control, Bioinformatics, Biomedical engineering, Neuromorphic hardware, Data mining, Information security, Social networks, Computational finance, Sports and rehabilitation, Special Sessions

Plenary Speakers

- Kunihiko Fukushima (Fuzzy Logic Systems Institute, Japan)
- Mitsuo Kawato (ATR, Japan)
- Irwin King (The Chinese University of Hong Kong, China)

Tutorial Speakers (included in registration fee)

- Nikola Kasabov (Auckland University of Technology, NZ)
- Stephen H. Scott (Queen's University, Canada)
- Aapo Hyvarinen (University of Helsinki, Finland)
- Okito Yamashita (ATR, Japan)

Special Sessions

- *Bio-Inspired/Energy-Efficient Information Processing: Theory, Systems, Devices and Applications* (Organizers: Shigeru Nakagawa, IBM Research - Tokyo, Japan and Akira Hirose, The University of Tokyo, Japan)

- *Whole Brain Architecture: Toward a Human Like General Purpose Artificial Intelligence* (Takashi Omori, Tamagawa University, Japan and Hiroshi Yamakawa, DWANGO Artificial Intelligence Laboratory, Japan)

- Artificial Neural Networks and Pattern Recognition in Geosciences (Sid-Ali Ouadfeul, Algerian Petroleum Institute, IAP, Algeria and Leila Aliouane, LABOPHYT, FHC, UMBB, Boumerdes, Algeria)

- Data-driven approach for extracting latent features from multi-dimensional data (Toshiaki Omori and Seiichi Ozawa, Graduate School of Engineering, Kobe University, Japa)

- Topological and Graph based Clustering methods (Rushed Kanawati and Nistor Grozavu, SPC University Paris 13, France)

- Deep and Reinforcement Learning (Abdulrahman Altahhan and Vasile Palade, Coventry University, UK)

Workshops (included in registration fee)

- Data Mining and Cybersecurity Workshop 2016 (http://www.csmining.org/cdmc2016/)
- Novel Approaches of Systems Neuroscience to Sports and Rehabilitation

Registration Fees   (To become an APNNS member, see *3. Membership Information* above.)

		Early Registration (by 7 Aug)	Late & On-site Registration (after 7 Aug)
Full Registration	APNNS Member	JPY 70,000	JPY 80,000
	Nonmember	JPY 75,000	JPY 85,000
Student Registration	APNNS Member	JPY 33,000	JPY 43,000
	Nonmember	JPY 38,000	JPY 48,000

Each paper requires one full registration (i.e., a student registration does not cover any papers). Each full registration covers a maximum of two papers and additional charge JPY 30,000 per paper is incurred for more than two papers with one full registration. A student registration can only be applied if the registrant sends a copy of student ID to Seiichi Ozawa (ozawasei@kobe-u.ac.jp) within the next 7 days after registration. If you don't provide copy of your student ID, you will be charged full rate. The extra page charge is JPY 10,000 per page. See more details on the registration page.

   Full & Student registrations include admission to all sessions (plenary / technical sessions / special sessions), tutorials, workshops, lunch and coffee breaks (Oct 17-Oct 20), one ticket for welcome reception, one ticket for banquet, one copy of the program booklet, one USB proceedings, one conference bag.

Student Travel Grants

ICONIP 2016 will offer a limited number of Travel Grants (JPY 55,000) for undergraduate students and graduate students. The students who want to apply for this travel grants must declare in advance on the paper submission page.

ICONIP 2016 Awards

We will present the two types of awards:

- Excellent Paper Awards
- Best Student Paper Awards

For Best Student Paper Awards, the finalists who are selected by the Awards Committee must attend the Presentation Session for Best Student Paper Awards which will be held at the conference venue on October 16th, 2016. The recipient of each award will be given a certificate of the award and a cash prize (JPY 55,000) to be presented during the conference banquet at ICONIP 2016.

Technical Tour

We plan to conduct a paid technical tour to visit ATR (Advanced Telecommunications Research Institute International) in Kyoto on October 21th, 2016. In ATR, you will visit the following three laboratories:

1) *Development of ATR Exoskeleton Robots* : Dr. Jun Morimoto @BRI Experiment Room

   We will introduce our newly developed ATR exoskeleton robots. In addition, we will demonstrate how these exoskeleton robots work.

2) *Introduction of Department of Neuroinformatics*: Dr. Yukiyasu Kamitani @fMRI Prisma Room

   Brain decoding and brain–machine interface

3) Network BMI system for supporting elderly and handicapped people: Dr. Takayuki Suyama @ BMI House

   For supporting elderly and handicapped people to become self-reliant in daily-life environments such as home and clinic, we have developed the network BMI system to control real-world actuators like wheelchairs based on human intention measured by a portable brain measurement system.

   After visiting ATR, we will visit Uji city, Byodoin, and the Fushimi Kizakura Memorial Museum. See the following links for details:

   Uji city: http://www.kyoto-uji-kankou.or.jp/index-en.html
   Byodoin: http://www.byodoin.or.jp/en/guide.html
   Fushimi Kizakura Memorial Museum: http://www.kizakura.co.jp/ja/en/index.html

   The capacity of this technical tour is only 30 and we will accept participants on first-come first served basis. Please register as soon as the registration page is set up. The tour fair is JPY 5,300 (including a lunch box) and should be paid on the ICONIP 2016 registration site.

Accommodation

The travel agency JTB will accept a limited number of accommodation requests shortly. However, we strongly recommend you to reserve your accommodation yourself as soon as possible (even before you get the acceptance notice). Please keep in mind that October is one of the most crowded seasons in Kyoto. If your reservation is late, you may have to commute from outside of Kyoto city.

If you have questions, feel free to contact the ICONIP 2016 Secretariat (iconip2016@gmail.com).

Fig. 5.3   (left) Nishiki market, (center) TOEI Kyoto Studio Park, and (right) Traditional tea service.
(C) Kyoto Convention & Visitors Bureau

6. Conferences and Meetings

Derong Liu, VP Conferences

APNNS has approved the following technically co-sponsored conferences:

1. 13th International Symposium on Neural Networks
   July 6-8, 2016
   St. Petersburg, Russia
   http://conference.cs.cityu.edu.hk/isnn/

2. 8th International Joint Conference on Computational Intelligence
   November 9-11, 2016
   Porto, Portugal
   http://www.ijcci.org/

3. Computational Intelligence in Information System Conference
   November 18-20, 2016
   Brunei
   http://sites.google.com/site/ciisconference2016/

If you would like your conferences to be considered for technical co-sponsorship by APNNS, please send the following required documents to APNNS Vice President for Conferences (derongliu@foxmail.com).

- Conference CFP and keywords of your conference;
- List of organizing committee members, with APNNS members clearly identified;
- Publication plan of your conference;
- Any special benefits to APNNS members.

7. Call For Papers

2016 Neural Networks Special Issue

"Advances in Cognitive Engineering Using Neural Networks"

Guest Editors

Steven Bressler, Florida Atlantic University, USA

Robert Kozma, University of Memphis, USA

Minho Lee, Kyungpook National University, Korea (South)

Scope

Cognitive Engineering is an interdisciplinary approach to the development of principles, methods, tools and techniques to guide the design of computerized systems intended to learn from and support of human cognitive performance. Cognitive Engineering draws on the disciplines of cognitive science, computer science, systems engineering, human computer interaction, human factors, and related fields. The goal of Cognitive Engineering is to develop systems that are easy to learn, easy to use, and lead to improved human-computer system performance.

Cognitive engineering has emerged in the past decades in response to the proliferation of computers in everyday life. Safety-critical systems became more complex and increasingly integrated with advanced computer technology; thus novel design principles were needed to ensure that teams of human experts could operate computer systems safely and efficiently. Cognitive engineering helps to develop human-friendly and reliable computer systems by explicitly considering human processing characteristics in the context of the computer-assisted tasks. In recent years, significant progress has been made in cognitive engineering by focusing on how people actually interact with complex technical systems, including advanced human-computer interfaces. As a result, cognitive engineering has become a recognized interdisciplinary field at the interface of cognitive science, computer science and engineering.

The special issue of Neural Networks on "Advances in Cognitive Engineering Using Neural Networks" aims at bringing together various research topics related to this field, discussing the present state-of-the-art, and outlining directions for future developments. We invite submissions on the most recent developments in Cognitive Engineering systems, methods, and models using neural networks, as well as various applications to real world tasks. We also welcome survey and overview papers pertaining to Cognitive Engineering.

Topics

Topics of interest include but are not limited to:

Cognition in engineered systems

Cognitive engineering methods

Cognitive engineering models

Cognitive engineering and causality

Attention, selective attention

Intention understanding

Decision making and prediction

Awareness computing

Emotion recognition

Modeling creativity

Modeling mental constructs

Team cognition

Human-Computer Interfaces

Embodied cognitive engineering

Neuro-ergonomics

Operator behavior

Emergency response systems

Submission procedure

Prospective authors should follow standard author instructions for Neural Networks and submit their manuscripts online at http://ees.elsevier.com/neunet/. During the submission process, there will be steps to designate the submission to this special issue.

Time Frame

Call for papers out: March 10, 2016

Submission deadline: August 15, 2016

Notification of Acceptance: November 15, 2016

Final manuscripts due: January 15, 2017

For details: mholee _at_ gmail.com

ICONIP 2016 Kyoto

The 23rd International Conference on Neural Information Processing (ICONIP 2016)
Kyoto University, Kyoto, Japan (16-21 Oct 2016)
http://www.iconip2016.org/

This is the Annual Conference of Asia-Pacific Neural Network Society.

Important Dates

Paper submissions: 15 May 2016 (Notification: 7 July 2016)
Camera-ready due: 22 July 2016
Author registration: 22 July 2016
Early registration: 7 August 2016

Topics of interest include, but not limited to:

Theory & Algorithms:

Neurodynamics, Machine learning, Deep neural networks,

Compulational intelligence, Pattern recognition,

Computer vision, Speech processing, Time series analysis,

Reinforcement learning, Bayesian networks, Computational & Cognitive

Neurosciences:

Sensory perception, Motor control, Decision making,

Social cognition, Emotion and reward, Neuroeconomics,

Computational psychiatry, Brain-machine interface,

Neural data analysis

Applications:

Big data analysis, Robotics and control, Bioinformatics,

Biomedical engineering, Neuromorphic hardware, Data mining,

Information security, Social networks, Computational finance,

Sports and rehabilitation, Special Sessions

Fig. 7.1   Kyoto University, the venue of ICONIP 2016.

Inquiry to: iconip2016 _at_ gmail.com