



The International Joint Conference on Neural Networks



2015 Conference Program

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International Joint Conference on Neural Networks (IJCNN) 2015

Program

Killarney, Ireland (Cill Airne, Éire)
July 12 – July 17, 2015

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1 Welcome Messages

1.1 Welcome Message from the General Chair and Program Chair of IJCNN 2015



De-Shuang Huang
General Chair



Yoonsuck Choe
Program Chair

On behalf of the Program Committee and Organizing Committee, we would like to warmly welcome you to the 2015 International Joint Conference on Neural Networks (IJCNN 2015) in beautiful Killarney, Ireland.

This conference continues the tradition of joint sponsorship of IJCNN by the International Neural Network Society (INNS) and the IEEE Computational Intelligence Society (IEEE-CIS). We would like to thank the leadership of two organizations, and particularly the Presidents, Ali Minai and Xin Yao, for making this possible.

For IJCNN 2015 we received 834 submissions from 66 countries, 32 of which were later withdrawn. Of these, 550 papers (65.9%) were accepted. The conference features 319 oral presentations, 231 poster presentations, and 9 plenary or invited talks. The program also features 20 tutorials, 5 post-conference workshops, 16 special sessions, and 4 competitions.

The plenary talks by Lee Giles, Marios Polycarpou, Vincenzo Piuri, Barak Pearlmutter, Steve Furber, and Giacomo Rizzolatti as well as three invited speeches by Vladimir Cherkassky, Anders Sandberg, Cesare Alippi reflect the broad themes of neuroscience and engineering applications, and go beyond traditional neural networks into areas like behavioral economics, bio-molecules, robotics, and control, etc. This year's conference has an especially strong set of presentations in the areas of big data and deep learning.

To organize a conference such as this was very demanding in terms of organizational effort, coordination and positive spirit. We would like to thank most of all the members of the Conference Executive Committee, the two Technical Program Co-Chairs, Haibo He and Asim Roy whose dedication made the organization of the conference possible. Special thanks go to Publicity Co-Chairs, Bill Howell, Yun Raymond Fu and Giacomo Boracchi, Tutorials Chair, Martin McGinnity, Publication Chair, Amir Hussain, Plenary Chair, Carlo Francesco Morabito, Web Reviews Chair, Tomasz Cholewo, and Webmaster, Jaerock Kwon. We would also like to thank our Special Session Co-Chairs, Mike Gashler and Jose Garcia-Rodriguez, Competitions Chair, Abir Hussain, Workshops Chair, Pierre-Yves Oudeyer, Awards Chair, Plamen Angelov, Panels Chair, Juyang Weng, Local Arrangements Co-Chairs, Marion McAfee and Kang Li, and Registration Chair, Khan Iftekharuddin. We also thank all other members of the Organizing Committee for their great help, all of whom put in a special effort towards the meeting's success.

We are particularly grateful to all members of the Program Committee and all reviewers who deserve great appreciation for providing discerning and timely reviews of over 830 submissions. In particular, we would like to thank all the authors for contributing their papers. Without the high-quality submissions from the authors, the success of the conference would not have been possible. We are also very grateful for the support we have received from many members of the INNS Board of Governors, and especially for sage advice from Ali Minai, Danil Prokhorov, and Dave Casasent of INNS leadership. Finally, we would also like to thank the organizational team at INNS Central Office led by Marianne Van Wagner and Alison Watson, without whose work the meeting would have been infinitely harder to organize.

As in past years, INNS and IEEE-CIS have provided support for many students to attend the conference. We hope that IJCNN will continue to serve as a place where young researchers can find both knowledge and inspiration.

Finally, we would like to thank the following sponsors for their generous support: Gold sponsors Fáilte Ireland National Tourism Development Authority (www.failtreireland.ie) and Meet in Ireland (meetinireland.com); and Bronze sponsors Budapest Semester in Cognitive Science, Brain-Mind Institute, and Springer.

We wish you a wonderful, productive, and pleasant IJCNN 2015.

De-Shuang Huang	Yoonsuck Choe
Tongji University, China	Texas A&M University, USA
General Chair, IJCNN 2015	Program Chair, IJCNN 2015

1.2 Welcome Message from the President of INNS



Ali Minai
INNS President

As President of the International Neural Network Society (INNS), it is a great pleasure and an honor for me to welcome you to the 2015 International Joint Conference on Neural Networks (IJCNN 2015) in beautiful Killarney, Ireland. This conference epitomizes the interdisciplinary nature of the field of neural networks, featuring presentations across a broad set of areas, including neuroengineering, distributed intelligence, computational neuroscience, cognitive modeling, bioinformatics, robotics, and many others. It also features a larger than usual set of plenary and invited talks by distinguished researchers who are shaping these fields. Another important feature of the conference is that it provides a forum where young, aspiring researchers from around the world can meet each other and interact with the leading practitioners in their fields, possibly establishing fruitful new collaborations for the future. All these aspects reflect the International Neural Network Society's fundamental commitment to fostering interdisciplinary research and scientific collaboration.

This conference also continues a successful tradition of collaboration between the INNS and the IEEE Computational Intelligence Society (IEEE-CIS) in their joint organization of IJCNN. Over a period of more than a quarter century, this collaboration has made IJCNN the premiere international conference for researchers in neural networks and related fields. We look forward to continuing this collaboration in Vancouver next year, and for years thereafter.

Over the last year, INNS has made significant strides in outreach to members, co-sponsoring conferences across the world, and promoting the activities of special interest groups. In perhaps its most ambitious new initiative in many years, INNS is organizing the first INNS Conference on Big Data in San Francisco this year (August 8–10, 2015), which will feature outstanding speakers and workshops in this critical area. The Society is also planning to pursue other ways to bring greater value to its members. An important part of this effort is a planned initiative to promote greater diversity within the Society and within the neural networks community in general.

Every year, INNS presents awards to researchers who have distinguished themselves through their contributions to the field of neural computation and its applications. This year, I am proud to announce the following recipients:

- **Hebb Award** recognizing achievement in biological learning: **Michael Hasselmo**
- **Gabor Award** recognizing achievement in engineering applications: **Donald Wunsch**
- **INNS Young Investigator Award**: **Huanhuan Chen**

At a time when a deeper understanding of the brain is being recognized across the world as one of the major “grand challenge” problems for science, researchers in neural networks and related fields represent an indispensable resource. From our position at the intersection of biology and technology, our efforts in understanding the neural basis of cognition, explaining the processes underlying mental illness, elucidating the mechanics of human creativity, helping to build smart prosthetics for the disabled, and creating truly intelligent machines hold the promise of changing the world for the better. The science and technology of the brain has never been more important, or more productive, as the presentations at this conference show.

I want to acknowledge the immense effort put in by the IJCNN'2015 Organizing Committee, led by General Chair De-Shuang Huang and Program Chair Yoonsuck Choe – ably helped by the Technical Co-Chairs, Asim Roy and Haibo He, and all the other chairs and liaisons. Their efforts have made this an exciting conference, with the largest number of attendees of any previous stand-alone IJCNN meeting. And finally, I would like to thank all the participants of IJCNN'2015 for contributing to this great meeting in many different ways. Welcome to Killarney!

Ali Minai
President of INNS

1.3 Welcome Message from the President of IEEE-CIS



Xin Yao

IEEE-CIS President

As the President of the IEEE Computational Intelligence Society (CIS), I am delighted to welcome you all to IJCNN'15 in Killarney, Ireland! CIS has been a partner with INNS in running IJCNN each year for more than two decades. The two organisations have collaborated harmoniously and worked closely together to bring IJCNN to the international communities. INNS is leading the organisation of IJCNN'15 and the next year's IJCNN'16 will be led by IEEE CIS as part of the WCCI'2016 in Vancouver, Canada (www.wcci2016.org).

Neural networks have come a long way as a thriving research field. In late 1980s, more papers presented at the neural network conferences were related to training algorithms and some applications in pattern classification. Now the field has grown significantly in both depth and breadth. It has served as a breeding ground for many fast-developing areas, including deep learning and big data analytics. The field has fused with many other fields, such as fuzzy systems, evolutionary computation, computational neuroscience, etc., to form a much broader field of computational intelligence. The old IEEE Transactions on Neural Networks was renamed to IEEE Transactions on Neural Networks and Learning Systems (TNNLS) a few years ago to reflect the development of the field of neural networks and the growing emphasis on learning systems.

Glancing through the programme of IJCNN'15, one can find a very interesting range of topics related to neural networks, from statistical machine learning to computational neuroscience, and from intelligent transport systems to smart industry. The IJCNN'15 programme is a real feast to anyone's brain. I hope every participant will find the conference as exciting as I feel. I actually have a hard time in planning which sessions I should attend, because there are so many interesting sessions (including tutorials) that I want to attend but cannot due to time clashes. I wish I could develop an artificial neural network system, which would attend the session I miss for me and then summarise the key ideas and results back to me after the session.

I recently wrote my President's Message in the May issue of IEEE Computational Intelligence Magazine, questioning the scientific base of ranking conferences in some countries. For me personally, attending a conference is far more than just publishing a paper. It is the whole experience of attending the conference, listening to people describing their work, debating ideas, and interacting with colleagues, that make a conference a conference, not just an outlet for publications. Don't we all have the experience that a new research interest or idea was sparked by some casual conversations at a conference? How could we rank that scientifically?

Wish you all have a wonderful conference experience at IJCNN'15!

Xin Yao

President

IEEE Computational Intelligence Society

2 Organizing Committee

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De-Shuang Huang, *Tongji University, China*

Program Chair

Yoonsuck Choe, *Texas A&M University, USA*

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Haibo He, *University of Rhode Island, USA*

Asim Roy, *Arizona State University, USA*

Plenary Chair

Francesco Carlo Morabito, *U. of Reggio Calabria, Italy*

Special Sessions Co-Chairs

Mike Gashler, *University of Arkansas, USA*

José García-Rodríguez, *Univ. of Alicante, Spain*

Tutorials Chair

Martin McGinnity, *Nottingham Trent U., UK, and*

University of Ulster, UK

Workshop Chair

Pierre-Yves Oudeyer, *INRIA, France*

Poster Session Chair

Xiao-Hua (Helen) Yu, *Cal Polytech Univ., USA*

Competition Chair

Abir Hussain, *Liverpool John Moores U., UK*

Panels Chair

Juyang (John) Weng, *Michigan State U., USA*

Awards Chair

Plamen Angelov, *Lancaster University, UK*

Web Reviews Chair

Tomasz Cholewo, *Lexmark Int'l Inc., US*

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Amir Hussain, *University of Stirling, UK*

Registration Chair

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International Liaison

Nikola Kasabov, *Auckland U. of Tech., New Zealand*

European Liaison

Péter Érdi, *Kalamazoo College, USA*

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Yun Raymond Fu, *Northeastern Univ., USA*

Giacomo Boracchi, *Politecnico di Milano, Italy*

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Kang Li, *Queens Univ., Belfast, UK*

Webmaster

Jaerock Kwon, *Kettering University, USA*

3 Program Committee

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Araujo, Aluizio
Awais, Mian
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Besold, Tarek
Boracchi, Giacomo
Bukovsky, Ivo
Cangelosi, Angelo
Cervellera, Cristiano
Cherkassky, Vladimir
Choi, Seungjin
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Doya, Kenji
Duro, Richard
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Guyon, Isabelle
He, Hongmei
Howell, Bill
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Li, Yuhua
Mann, Timothy
Megiddo, Nimrod
Miiikkulainen, Risto
Murtagh, Fionn
Ozawa, Seiichi
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Shanahan, Murray
Siano, Pierluigi
Smith, Leslie
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Suresh, Sundaram
Tambouratzis, Tatiana
Vellido, Alfredo
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Wang, Lipo
Widrow, Bernard
Yager, Ronald R.
Zhang, Zhao

4 Reviewers

Note: (1) Organizing committee and program committee members who reviewed papers are also listed. (2) Author last names appear as entered on the submission form.

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 Ko, Sakai
 Kouroupetroglou, Georgios
 Kramer, Kathleen
 Kristensen, Terje
 Kubota, Naoyuki
 Kumarappan, N.
 Kurfess, Franz
 Kursun, Olcay
 Lai, Daniel
 Lamirel, Jean-Charles
 Lan, Man
 Lazhar, Labiod
 Lee, Hyekyoung
 Lee, Minhoo
 Leighty, Brian
 Levine, Daniel
 Liang, Zhao
 Li, Chengdong
 Li, Hongliang
 Likas, Aristidis
 Lim, Heejin
 Lim, Tran Hoai
 Liparulo, Luca
 Lisboa, Paulo
 Liu, Xiwei
 Livi, Lorenzo
 Lo Bosco, Giosue'
 Lo, James T.
 Lopes, Noel
 Lourenco, Carlos
 Lucas, Tarcisio
 Luengo, David
 Lu, Qiang
 Macau, Elbert

Howell, Bill
 Hsu, Chun-Fei
 Huang, Chieh-Ling
 Huang, Guang-Bin
 Huang, Yinjie
 Hu, Jinglu
 Hu, Meng
 Hussain, Amir
 Ichiji, Kei
 Ikeguchi, Tohru
 Isokawa, Teijiro
 Jiang, Yunzhi
 Johannet, Anne
 Jordanov, Ivan
 Kaburlasos, Vassilis
 Kang, Qi
 Karlsen, Robert
 Kayacik, Gunes
 Kerdivulvech, Chutisant
 Khorasani, Kash
 Kil, Rhee Man
 Kim, Kyung-Joong
 Kinto, Eduardo Akira
 Kochhar, Dev S.
 Komendantskaya, Ekaterina
 Koprinkova-Hristova, Petia
 Kosmopoulos, Dimitrios
 Koutroumbas, Konstantinos
 Kreinovich, Vladik
 Krohling, Renato
 Kuh, Anthony
 Kumar, Pradeep
 Kurita, Takio
 Kwon, Jaerock
 Lambert-Torres, Germano
 Langone, Rocco
 Lansner, Anders
 Lebbah, Mustapha
 Lee, John
 Lee, Minwoo
 Lemaire, Vincent
 Levy, Pierre
 Li, Baichuan
 Li, Cong
 Li, Jianmin
 Lima, Clodoaldo
 Linares-Barranco, Alejandro
 Li, Ning
 Li, Peng
 Liu, Derong
 Liu, Yang
 Li, Yuhua
 Loconsole, Claudio
 Loo, ChuKiong
 Lopez de Luise, Daniela
 Lowrie, Christopher
 Luciw, Matthew
 Luo, Xiao
 Lv, Jiancheng
 Maccio', Danilo

Madeiro, Francisco
 Magdalena, Luis
 Mahmud, Mufti
 Malliaris, Mary
 Mandziuk, Jacek
 Mao, Hongwei
 Marocco, Davide
 Martin-Guerrero, Jose D.
 Ma, Tiedong
 Matsui, Nobuyuki
 Matthews, Stephen
 Meer, Marius van der
 Melin, Patricia
 Mendoza, Leonardo
 Miikkulainen, Risto
 Morell, Vicente
 Muller, Daniel Nehme
 Mylonas, Phivos
 Nakano, Ryohei
 Narayan, Vikram
 Nichols, Barry
 Nishimura, Haruhiko
 Ntalampiras, Stavros
 Oh, Sang-Hoon
 Okun, Oleg
 Olteanu, Madalina
 Ortega, Juan A.
 Osinenko, Pavel
 Ozawa, Seiichi
 Paetz, Juergen
 Palmieri, Francesco
 Pan, Shing-Tai
 Pappalardo, Francesco
 Passow, Benjamin
 Pavlidou, Meropi
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 Peterson, Leif E.
 Petrovskiy, Mikhail
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 Qiu, Fang
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 Redko, Ievghen
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 Rivas-Perea, Pablo
 Rizzo, Riccardo
 Rojo-Alvarez, Jose Luis
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 Maggioni, Matteo
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 Mallipeddi, Rammohan
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 Martin, Arnaud
 Masafumi, Hagiwara
 Matsubara, Edson Takashi
 Matsui, Tetsuo
 Medeiros, Talles Henrique de
 Mehrkanoon, Siamak
 Mello, Carlos
 Mentzelopoulos, Markos
 Minku, Leandro
 Mori, Hiroki
 Murphey, Yi
 Naidoo, Bashan
 Narayanan, Arun
 Neme, Antonio
 Nikolik, PhD
 Nishio, Yoshifumi
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 Okada, Shogo
 Oliveira, Luiz
 Oneto, Luca
 Orts-Escolano, Sergio
 Osoba, Osonde
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 Palensky, Peter
 Panagiotopoulos, Dimokritos
 Papakostas, George
 Parsapoor, Mahboobeh
 Patane', Luca
 Pears, Russel
 Peng, Hanxiang
 Pereira, Carlos
 Perrone, Antonio Luigi
 Petia, Georgieva
 Pham, Cong-Kha
 Piazza, Francesco
 Pilly, Praveen
 Pokrajac, David
 Powell, Warren
 Precup, Radu-Emil
 Prokhorov, Danil
 Purnomo, Mauridhi Hery
 Qin, Chunbin
 Qi, Zhou
 Rai, Shri
 Rani, Sobha
 Raza, Haider
 Regazzoni, Francesco
 Ridella, Sandro
 Rivas Santos, Victor Manuel
 Rodriguez Rivero, Cristian
 Romero, Roseli
 Rossello, Josep L.
 Roux, Ludovic
 Rueckert, Ulrich
 Madureira, Ana Maria
 Maguire, Liam
 Malik, Om
 Mandic, Danilo
 Mann, Timothy
 Marchi, Erik
 Martinelli, Eugenio
 Masulli, Francesco
 Matsuda, Satoshi
 Matsuyama, Yasuo
 Medsker, Larry
 Meindl, Tassilo
 Melo-Pinto, Pedro
 Mi, Guyue
 Mohagheghi, Salman
 Muhamad Amin, Anang Hudaya
 Murtagh, Fionn
 Nakada, Yohei
 Narayan, Sridhar
 Nguyen, Minh Nhut
 Ninomiya, Hiroshi
 Ni, Zhen
 Ohkura, Kazuhiro
 O'Keefe, Simon
 Olsen, Megan
 Ong, Yew-Soon
 OShea, James
 Oswald, Cyril
 Pachidis, Theodore
 Palm, Guenther
 Panella, Massimo
 Paplinski, Andrew P
 Pasa, Leandro
 Patan, Krzysztof
 Pedrycz, Witold
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 Petridis, Stavros
 Phlypo, Ronald
 Picton, Phil
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 Shen, Furao
 Shen, Yun
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 Souza, Jackson
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 Sublime, Jeremie
 Sun, Bing-Yu
 Sun, Liang
 Surampudi, Durga Bhavani
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 Taha, Tarek
 Takahashi, Takashi
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 Wang, Ding
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 Saighi, Sylvain
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 Sanchez Giraldo, Luis Gonzalo
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 Sato, Shigeo
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 Schleif, Frank
 Schumann, Johann
 Sergio, Anderson
 Sethi, Ishwar
 Shannon, Thaddeus
 Shen, Yi
 Shibata, Katsunari
 Shim, Eunsoo
 Shouno, Hayaru
 Si, Jennie
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 Silva, Thiago Christiano
 Skabar, Andrew
 Solari, Fabio
 Song, Chao
 Soschen, Alona
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 Ster, Branko
 Subramanian, Kartick
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 Sun, Tsung-Ying
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 Tambouratzis, Tatiana
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 Tan, Mingkui
 Teegavarapu, Ramesh
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 Tivive, Fok Hing Chi
 Torres-Sospedra, Joaquin
 Tsang, Ing Ren
 Tuckova, Jana
 Tu, Zhengwen
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 Wang, Hung-Jen
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 Saito, Jose Hiroki
 Sakurai, Akito
 Salazar, Addisson
 Sandmann, Humberto
 Santana Junior, Orivaldo
 Sarmiento Vega, Auxiliadora
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 Scardapane, Simone
 Schaefer, Gerald
 Schleif, Frank-Michael
 Schwenker, Friedhelm
 Seridi, Hamid
 Severini, Marco
 Shell, Jethro
 Shen, Yuan
 Shi, Bertram
 Shim, Vui Ann
 Siano, Pierluigi
 Sil, Jaya
 Silva, Leandro Augusto
 Singh, Abhishek
 Slot, Krzysztof
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 Sreela, Sasi
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 Suri, Manan
 Szu, Harold
 Takahashi, Norikazu
 Tanaka, Toshihisa
 Tang, Bo
 Taskaya-Temizel, Tugba
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 Tizhoosh, Hamid R.
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 Vigneron, Vincent
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 Von Zuben, Fernando J.
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 Wang, DeLiang
 Wang, Jianyong

Wang, Lei
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Zhang, Long
Zhang, Yanming
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Zhao, Qiangfu
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Zuo, Xingquan

Wang, Lipo
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Xu, Jin
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Yang, Zhile
Yi, Xinlei
Yu, Qiang
Zeleznikow, John
Zhang, Dehua
Zhang, Ruiliang
Zhang, Yi
Zhao, Dongbin
Zhao, Xiaodong
Zhou, Shang-Ming
Zou, Weibao

Wang, Pan
Wang, Wenwu
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Wang, Zhanshan
Wei, Wei
Wichern, Gordon
Wong, Man Leung
Wuertz, Rolf
Wurtz, Rolf
Xiao, Geyang
Xia, Yuanqing
Xu, Dongming
Xu, Jun
Yang, Peipei
Yan, Jun
Yoo, Jaewook
Zanchettin, Cleber
Zeng, Zhigang
Zhang, Huaguang
Zhang, Xiaohui
Zhang, Zhao
Zhao, Liu
Zheng, Ren
Zhou, Tom Chao
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5 INNS Organization

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7 Featured Talks: Plenary and Invited Talks

7.1 Plenary Speakers

- Giacomo Rizzolatti, *University of Parma, Italy*
 - The Double Life of the Motor System: Action Production and Action Understanding
 - Monday July 13, 2015, 8am-9am
- Marios Polycarpou, *University of Cyprus, Cyprus*
 - Fault Detection and Isolation in Uncertain Big-Data Environments
 - Tuesday July 14, 2015, 8am-9am
- Vincenzo Piuri, *University of Milan, Italy*
 - Computational Intelligence Technologies for 3D Surface Reconstruction
 - Tuesday July 14, 2015, 1:30pm-2:30pm
- Barak Pearlmutter, *National University of Ireland, Ireland*
 - Critical Dynamics and Pathological Phenomena in the Brain
 - Wednesday July 15, 2015, 8am-9am
- Stephen Furber, *University of Manchester, United Kingdom*
 - The SpiNNaker Project
 - Wednesday July 15, 2015, 1:10pm-2:10pm
- Lee Giles, *Pennsylvania State University, United States*
 - Machine Learning and Data Mining for Scholarly Big Data
 - Thursday July 16, 2015, 8am-9am

7.2 Invited Speakers

- Anders Sandberg, *Oxford University*
 - Ethics and large-scale neural simulations: when do we need to start caring for networks, rather than about them?
 - Monday July 13, 2015, 10:50am-11:30am
- Vladimir Cherkassky, *University of Minnesota*
 - Methodological Aspects of VC-theory
 - Tuesday July 14, 2015, 10:50am-11:30am
- Cesare Alippi, *Politecnico di Milano, Italy*
 - Intelligence for Cyber-Physical and Embedded Systems
 - Wednesday July 15, 2015, 10:50am-11:30am

8 Program Overview

Sunday, July 12th, 2015

Time	Brehon 1:	Brehon 2 :	Ross :	Park Suite:	Torc :
8:00AM	tut1: Tutorial 1: Forecasting with Recurrent Neural Networks: 12 Tricks	tut2: Tutorial 2: The Mind-Brain, Big Data and Automomous Learning	tut3: Tutorial 3: Noninvasive Electroencephalogram -based Brain-Computer Interfaces	tut4a: Tutorial 4(a): Robust Model-based Learning: Methods, Algorithms and Applications	tut4b: Tutorial 4(b): Simulating an entire nervous system? An exemplary Caenorhabditis elegans emulation case study
10:00AM	Break				
10:30AM	tut5: Tutorial 5: Computational Intelligence for Wearable Physiological Sensing	tut6: Tutorial 6: Compositionality and Self-Organization in Cognitive Minds: Lessons from Neuro-Robotics Experimental Studies	tut7: Tutorial 7: Computational Neuroscience: Past - Present - Future	tut8: Tutorial 8: Data visualization with dimensionality reduction and manifold learning	tut9: Tutorial 9: Dynamic Systems and Learning in the Model Space
12:30PM	Break				
1:30PM	tut10: Tutorial 10: Canceled	tut11: Tutorial 11: Multi-Task Learning Primer	tut12: Tutorial 12: Learning in indefinite proximity spaces: Mathematical foundations, representations, and models	tut13: Tutorial 13: Successful Applications of Neural Networks for Information Fusion	tut14: Tutorial 14: Conformal Prediction: A Valid Approach to Confidence Predictions
3:30PM	Break				
4:00PM	tut15: Tutorial 15: Advances in Universum Learning	tut16: Tutorial 16: Learning Autonomously from Big Data Streams	tut17: Tutorial 17: Feature Selection Technique for Gene Expression Data Analysis	tut18: Tutorial 18: Spiking Neural Networks in Silicon: From Building Blocks to Architectures of Neuromorphic Systems	tut19: Tutorial 19: Learning architectures and training algorithms - comparative studies
6:00PM	Break				
6:30pm	Opening Reception: Mangerton Suite, Gleneagle				
7:30PM	End of Day				

Monday, July 13th, 2015

Time	Auditorium:	Ballroom:	Brehon:	Park Suite:	Mangerton:
8:00AM	Plenary1 : Plenary session: Giacomo Rizzolatti (Auditorium)				
9:00AM	Break				
9:10AM	Chaos: Non-linear dynamics and chaos	ss28: Clustering and Co-clustering	Graph: Graphs	ss11-1: Emerging trends in Computational Intelligence methods for Biomedicine and Healthcare	Neurosc1: Neuroscience 1: behavioral modeling
10:30AM	Break				
10:50AM	Invited1: Invited Speaker: Anders Sandberg	ss23-1: Complex and memristive networks 1	Manif1: Manifold learning and dimensionality reduction 1	ss11-2: SS: Biomedical applications	Dyn1: Neurodynamics 1
11:30AM	Emotion: Emotion and motivation	ss23-1:	Manif1:	ss11-2:	Dyn1:
12:10PM	Break				
1:30PM	Finance1: Financial and commercial applications	EEGMEG1: EEG/MEG analysis and applications 1	Manif2: Manifold learning and dimensionality reduction 2	Sampling: Sampling	Dyn2: Neurodynamics 2
2:30PM	Break				
2:40PM	Finance2: Financial and commercial applications	ss23-2: Complex and memristive networks 2	DeepNN1: Deep neural networks 1	ss13: Emerging Methodologies for Big Data Integration	Neurosc2: Neuroscience 2: neurons, synapses, and circuits
4:20PM	Break				
4:40PM	Temporal: Time and temporal processes	EEGMEG2: EEG/MEG analysis and applications 2	DeepNN2: Deep neural networks 2	ss26: Optimizing Neural Networks Using Evolutionary Computation and Swarm Intelligence	Neurosc3: Neuroscience 3: behavior, memory, and motivation
6:20PM	Break				
7:30pm	Poster Session: INEC Ground Floor and 1st Floor Lobby				
9:30PM	End of Day				

Tuesday, July 14th, 2015

Time	Auditorium:	Ballroom:	Brehon:	Park Suite:	Mangerton:
8:00AM	Plenary2 : Plenary session: Mario Polycarpou (Auditorium)				
9:00AM	Break				
9:10AM	Social: Social media analysis	ss32-1: Autonomous Machine Learning for Cyber-Physical Systems 1	ss17: Autonomous Learning from Big Data	Theory1: Neural networks theory 1	Predict: Prediction and forecasting
10:30AM	Break				
10:50AM	Invited2: Invited Speaker: Vladimir Cherkassky	ss32-2: Autonomous Machine Learning for Cyber-Physical Systems 2	ss25: Computational Intelligence Applications to Environmental Sustainability and Sustainable Development: Theory and Applications	Theory2: Neural networks theory 2	Ensemble: Ensemble learning
11:30AM	SVM1: Support Vector Machines 1	ss32-2:	ss25:	Theory2:	Ensemble:
12:10PM	Break				
1:30PM	Plenary3 : Plenary session: Vincenzo Piuri (Auditorium)				
2:30PM	Break				
2:40PM	SVM2 : Support Vector Machines 2	RNN: Recurrent neural networks	ss03: Cognition and Development	Theory3: Neural networks theory 3	ss36: Ensemble Systems and Machine Learning
4:20PM	Break				
4:40PM	SVM3: Support Vector Machines 3	ss29: Modeling and Forecasting Financial and Commodity Markets by Neural Networks	ss27: Models of Cognitive-Emotional Interactions	Language: Natural language processing	BioApp: Biomedical applications
6:20PM	Break				
7:30pm	Poster Session: INEC Ground Floor and 1st Floor Lobby				
9:30PM	End of Day				

Wednesday, July 15th, 2015

Time	Auditorium:	Ballroom:	Brehon:	Park Suite:	Mangerton:
8:00AM	Plenary4 : Plenary session: Barak Pearlmutter (Auditorium)				
9:00AM	Break				
9:10AM	Struct: Structures and hierarchies	ss33: Intelligent Vehicle Systems	Spiking1: Spiking neural networks 1	Robot1: Robotics 1: Spatial Cognition and Navigation	HW1: Hardware 1
10:30AM	Break				
10:50AM	Invited3: Invited Speaker: Cesare Alippi	ss12-1: Concept Drift, Domain Adaptation and Learning in Dynamic Environments 1	Spiking2: Spiking neural networks 2	Robot2: Robotics 2: Sensory and motor processing	HW2: Hardware 2
11:30AM	ML1: Machine learning 1	ss12-1:	Spiking2:	Robot2:	HW2:
12:10PM	Break				
1:10PM	Plenary5 : Plenary session: Steve Furber (Auditorium)				
2:10PM	Break				
2:20PM	ML2: Machine learning 2	ss12-2: Concept Drift, Domain Adaptation and Learning in Dynamic Environments 2	ss01-1: Computational Intelligence applied to Vision and Robotics (CIVR) 1	RL1: Reinforcement learning 1	HW3: Hardware 3
4:00PM	Break				
4:20PM	ML3: Machine learning 3 [ROOM CHANGE: INN-ISFALLEN]	ss12-3: Concept Drift, Domain Adaptation and Learning in Dynamic Environments 3	ss01-2: Computational Intelligence applied to Vision and Robotics (CIVR) 2	RL2: Reinforcement learning 2	Noise: Anomaly and noise
6:00PM	Break				
7:00PM	Banquet: INEC Ground Floor				
9:30PM	End of Day				

Thursday, July 16th, 2015

Time	Auditorium:	Ballroom:	Brehon:	Park Suite:	Mangerton:
8:00AM	Plenary6 : Plenary session: Lee Giles (Auditorium)				
9:00AM	Break				
9:10AM	ss16-1: Computational Intelligence Algorithms for Digital Audio Applications 1	ML4: Machine learning 4	Spiking3: Spiking neural networks 3	Cluster: Clustering	BioPerc1: Biologically inspired perception 1
10:30AM	Break				
10:50AM	ss16-2/r: Computational Intelligence Algorithms for Digital Audio Applications 2 + Regular session on Image Analysis	Datamine: Data and text mining	Image: Image analysis	Local : Local learning	BioPerc2: Biologically inspired perception 2
12:10PM	Break				
1:30PM		ws1: Workshop 1: The 2nd International Workshop on Advances in Learning from/with Multiple Learners (ALML 2015)	ws2: Workshop 2: The International Workshop on Spatial Representations in Biology and Robots	ws3: Workshop 3: Computational Neurology and Psychiatry: Do we need it?	ws4: Workshop 4: BMI Workshop on Brain-Mind 1
4:30PM	End of Day				

Friday, July 17th, 2015

Time					Innisfallen:
9:00AM					ws5-1: Workshop 5: The 2nd International Workshop on Computational Energy Management in Smart Grids (CEMiSG 2015) 1
12:00PM	Break				
1:30PM					ws5-2: Workshop 5: The 2nd International Workshop on Computational Energy Management in Smart Grids (CEMiSG 2015) 2
4:30PM	End of Day				

9 Program

IJCNN 2015 Program

Sunday, July 12, 2015

Tutorial tut1: Tutorial 1: Forecasting with Recurrent Neural Networks: 12 Tricks

Sunday, July 12, 8:00AM-10:00AM, Room: Brehon 1, Instructor: Hans-Georg Zimmermann, Christoph Tietz and Ralph Grothmann

Tutorial tut2: Tutorial 2: The Mind-Brain, Big Data and Automomous Learning

Sunday, July 12, 8:00AM-10:00AM, Room: Brehon 2, Instructor: Leonid I. Perlovsky

Tutorial tut3: Tutorial 3: Noninvasive Electroencephalogram-based Brain-Computer Interfaces

Sunday, July 12, 8:00AM-10:00AM, Room: Ross, Instructor: Joao Luis Rosa

Tutorial tut4a: Tutorial 4(a): Robust Model-based Learning: Methods, Algorithms and Applications

Sunday, July 12, 8:00AM-10:00AM, Room: Park Suite, Instructor: Yixin Chen and Xin Dang

Tutorial tut4b: Tutorial 4(b): Simulating an entire nervous system? An exemplary Caenorhabditis elegans emulation case study

Sunday, July 12, 8:00AM-10:00AM, Room: Torc, Instructor: Axel Blau, Martin McGinnity, Fearghal Morgan, Andoni Mujika

Tutorial tut5: Tutorial 5: Computational Intelligence for Wearable Physiological Sensing

Sunday, July 12, 10:30AM-12:30PM, Room: Brehon 1, Instructor: Danilo Mandic and Valentin Goverdovsky

Tutorial tut6: Tutorial 6: Compositionality and Self-Organization in Cognitive Minds: Lessons from Neuro-Robotics Experimental Studies

Sunday, July 12, 10:30AM-12:30PM, Room: Brehon 2, Instructor: Jun Tani

Tutorial tut7: Tutorial 7: Computational Neuroscience: Past - Present - Future

Sunday, July 12, 10:30AM-12:30PM, Room: Ross, Instructor: Peter Erdi

Tutorial tut8: Tutorial 8: Data visualization with dimensionality reduction and manifold learning

Sunday, July 12, 10:30AM-12:30PM, Room: Park Suite, Instructor: Michel Verleysen and John A. Lee

Tutorial tut9: Tutorial 9: Dynamic Systems and Learning in the Model Space

Sunday, July 12, 10:30AM-12:30PM, Room: Torc, Instructor: Huanhuan Chen and Peter Tino

Tutorial tut10: Tutorial 10: Canceled

Sunday, July 12, 1:30PM-3:30PM, Room: Brehon 1, Instructor: N/A

Tutorial tut11: Tutorial 11: Multi-Task Learning Primer

Sunday, July 12, 1:30PM-3:30PM, Room: Brehon 2, Instructor: Georgios Anagnostopoulos and Cong Li

Tutorial tut12: Tutorial 12: Learning in indefinite proximity spaces: Mathematical foundations, representations, and models

Sunday, July 12, 1:30PM-3:30PM, Room: Ross, Instructor: Peter Tino and Frank-Michael Schlieff

Tutorial tut13: Tutorial 13: Successful Applications of Neural Networks for Information Fusion

Sunday, July 12, 1:30PM-3:30PM, Room: Park Suite, Instructor: Stephen Stubberud and Kathleen Kramer

Tutorial tut14: Tutorial 14: Conformal Prediction: A Valid Approach to Confidence Predictions

Sunday, July 12, 1:30PM-3:30PM, Room: Torc, Instructor: Henrik Bostrom, Alex Gammerman, Ulf Johansson, Lars Carlsson, Henrik Linusson

Tutorial tut15: Tutorial 15: Advances in Universum Learning

Sunday, July 12, 4:00PM-6:00PM, Room: Brehon 1, Instructor: Vladimir Cherkassky and Saptik Dhar

Tutorial tut16: Tutorial 16: Learning Autonomously from Big Data Streams

Sunday, July 12, 4:00PM-6:00PM, Room: Brehon 2, Instructor: Plamen Angelov and Asim Roy

Tutorial tut17: Tutorial 17: Feature Selection Technique for Gene Expression Data Analysis

Sunday, July 12, 4:00PM-6:00PM, Room: Ross, Instructor: B. Chandra

Tutorial tut18: Tutorial 18: Spiking Neural Networks in Silicon: From Building Blocks to Architectures of Neuromorphic Systems

Sunday, July 12, 4:00PM-6:00PM, Room: Park Suite, Instructor: Arindam Basu

Tutorial tut19: Tutorial 19: Learning architectures and training algorithms - comparative studies

Sunday, July 12, 4:00PM-6:00PM, Room: Torc, Instructor: Bigdan Wilamowski

Monday, July 13, 2015

Plenary Talk Plenary1: Plenary session: Giacomo Rizzolatti

Monday, July 13, 8:00AM-9:00AM, Room: Auditorium, Chair: Morabito, Francesco Carlo

Session Chaos: Nonlinear dynamics and chaos

Monday, July 13, 9:10AM-10:30AM, Room: Auditorium, Chair: Shanahan, Murray

9:10AM Local and Global Criticality within Oscillating Networks of Spiking Neurons [#15411]

Filipe Peliz Pinto Teixeira and Murray Shanahan

9:30AM Reinforcement Learning with Internal-Dynamics-based Exploration Using a Chaotic Neural Network [#15231]

Katsunari Shibata and Yuta Sakashita

9:50AM Chaotic Multidirectional Associative Memory with Adaptive Scaling Factor of Refractoriness [#15529]

Hayashi Nagamasa and Osana Yuko

10:10AM Prediction Interval-based Neural Network Controller for Nonlinear Processes [#15155]

Mohammad Anwar Hosen, Abbas Khosravi, Saeid Nahavandi, Douglas Creighton and Syed Moshfeq Salaken

Special Session ss28: Clustering and Co-clustering

Monday, July 13, 9:10AM-10:30AM, Room: Ballroom, Chair: Lemaire, Vincent; Gisbrecht, Andrej; Lamierl, Jean-Charles

9:10AM Discriminative Dimensionality Reduction for Regression Problems using the Fisher Metric [#15656]

Alexander Schulz and Barbara Hammer

9:30AM Automatic Discovery of Metagenomic Structure [#15327]

Markus Lux, Alexander Sczyrba and Barbara Hammer

9:50AM An Initialization Scheme for Supervised K-means [#15404]

Vincent Lemaire, Oumaima Alaoui Ismaili and Antoine Cornuejols

10:10AM A New Approach for Event Detection using k-means Clustering and Neural Networks [#15677]

Muyiwa Olakanmi Oladimeji, Mikdam Turkey, Mohammad Ghavami and Sandra Dudley

Session Graph: Graphs

Monday, July 13, 9:10AM-10:30AM, Room: Brehon, Chair: Doboli, Simona

9:10AM Generalized Label Propagation [#15672]

Asher Hensley, Alex Daboli, Rami Mangoubi and Simona Daboli

9:30AM Robust Multi-class Graph Transduction with Higher Order Regularization [#15080]

Celso Sousa and Gustavo Batista

9:50AM An experimental analysis on time series transductive classification on graphs [#15081]

Celso Sousa, Vinicius Souza and Gustavo Batista

10:10AM Two-Dimensional Multi-layer Factor Graphs in Reduced Normal Form [#15212]

Amedeo Buonanno and Francesco A.N. Palmieri

Special Session ss11-1: Emerging trends in Computational Intelligence methods for Biomedicine and Healthcare

Monday, July 13, 9:10AM-10:30AM, Room: Park Suite, Chair: Vellido, Alfredo

9:10AM Selecting target concept in one-class classification for handling class imbalance problem [#15552]

Beatriz Perez-Sanchez, Oscar Fontenla-Romero and Noelia Sanchez-Marono

9:30AM Advanced Classification of Alzheimer's Disease and Healthy Subjects Based on EEG Markers [#15276]

Vitoantonio Bevilacqua, Angelo Antonio Salatino, Carlo Di Leo, Giacomo Tattoli, Domenico Buongiorno, Domenico Signorile, Claudio Babiloni, Claudio Del Percio, Antonio Ivano Triggiani and Loreto Gesualdo

9:50AM The Extracellular N-terminal Domain Suffices to Discriminate Class C G Protein-Coupled Receptor Subtypes from n-Grams of their Sequences [#15481]

Caroline Konig, Rene Alquezar, Alfredo Vellido and Jesus Giraldo

10:10AM A supervised CAD to support telemedicine in hematology [#15277]

Vitoantonio Bevilacqua, Domenico Buongiorno, Pierluigi Carlucci, Ferdinando Giglio, Giacomo Tattoli, Attilio Guarini, Giovanni Simone, Nicola Sgherza, Francesco Girardi, Giacomina De Tullio, Carla Minoia, Anna Scattone, Alfredo Zito and Loreto Gesualdo

Session Neurosc1: Neuroscience 1: behavioral modeling

Monday, July 13, 9:10AM-10:30AM, Room: Mangerton, Chair: Parker, Alice

9:10AM Learning Human Motion Feedback with Neural Self-Organization [#15610]

German Ignacio Parisi, Florian Von Stosch, Sven Magg and Stefan Wermter

9:30AM On the utility of sparse neural representations in adaptive behaving agents [#15526]

Thusitha Chandrapala, Bertram Shi and Jochen Triesch

9:50AM Emergence of Tool Use in an Articulated Limb Controlled by Evolved Neural Circuits [#15417]

Qinbo Li, Jaewook Yoo and Yoonsuck Choe

10:10AM Neural Circuits for Touch-Induced Locomotion in *Caenorhabditis Elegans* [#15201]

Sukanya Patil, Kaidi Zhou and Alice Parker

Panel Session Invited1: Invited Speaker: Anders Sandberg

Monday, July 13, 10:50AM-11:30AM, Room: Auditorium, Chair: Choe, Yoonsuck

Special Session ss23-1: Complex and memristive networks 1

Monday, July 13, 10:50AM-12:10PM, Room: Ballroom, Chair: Corinto, Fernando; Lanza, Valentina

10:50AM Class of memristors from cascade of static nonlinear two ports with dynamic one-ports [#15021]

Alon Ascoli, Fernando Corinto and Ronald Tetzlaff

11:10AM Behavioral Model for Simplified Identification of Memristor Parameters [#15336]

Zdenek Kolka, Viera Biolkova, Dalibor Biolek and Jiri Vavra

11:30AM Quantum-Inspired Complex-Valued Multidirectional Associative Memory [#15195]

Naoki Masuyama and ChuKiong Loo

11:50AM Complex-Valued Multilayer Perceptron Learning Using Singular Regions and Search Pruning [#15266]

Seiya Satoh and Ryohei Nakano

Session Manif1: Manifold learning and dimensionality reduction 1

Monday, July 13, 10:50AM-12:10PM, Room: Brehon, Chair: Andras, Peter

10:50AM High-Dimensional Function Approximation Using Local Linear Embedding [#15134]

Peter Andras

11:10AM Learning Orthogonal Sparse Representations by using Geodesic Flow Optimization [#15540]

Henry Schuetze, Erhardt Barth and Thomas Martinetz

11:30AM Stochastic Computation of Dominant Eigenvalue and the Law of Total Variance [#15661]

George Georgiou, Kerstin Voigt and Haiyan Qiao

11:50AM Sparsity Analysis of Learned Factors in Multilayer NMF [#15396]

Ievgen Redko and Younes Bennani

Special Session ss11-2: SS: Biomedical applications

Monday, July 13, 10:50AM-12:10PM, Room: Park Suite, Chair: Ko, Li-Wei

10:50AM Using Regional Homogeneity from Functional MRI for Diagnosis of ASD among Males [#15413]

Vigneshwaran Subbaraju, Suresh Sundaram, Mahanand Belathur Suresh and Sundararajan Narasimhan

11:10AM An Empirical Mode Decomposition Based Filtering Method for Classification of Motor-Imagery EEG Signals for Enhancing Brain-Computer Interface [#15679]

Pramod Gaur, Ram Bilas Pachori, Hui Wang and Girijesh Prasad

11:30AM Learning with Covariate Shift-Detection and Adaptation in Non-Stationary Environments: Application to Brain-Computer Interface [#15664]

Haider Raza, Hubert Cecotti, Yuhua Li and Girijesh Prasad

11:50AM Single Channel Wireless EEG Device for Real-Time Fatigue Level Detection [#15767]

Li-Wei Ko, Wei-Kai Lai, Wei-Gang Liang, Chun-Hsiang Chuang, Shao-Wei Lu, Yi-Chen Lu, Tien-Yang Hsiung, Hsu-Hsuan Wu and Chin-Teng Lin

Session Dyn1: Neurodynamics 1

Monday, July 13, 10:50AM-12:10PM, Room: Mangerton, Chair: Guo, Wentao

10:50AM Parallel Algorithms for a Neurodynamic Optimization System Realized on GPU and Applied to Recovering Compressively Sensed Signals [#15462]

Xiaodan Zhu and Chengan Guo

11:10AM Effect of Associative Rules on the Dynamics of Conceptual Combination in a Neurodynamical Model [#15832]

Sarjoun Doumit and Ali Minai

11:30AM Error Bound Analysis of Policy Iteration Based Approximate Dynamic Programming for Deterministic Discrete-time Nonlinear Systems [#15717]

Wentao Guo, Feng Liu, Jennie Si, Shengwei Mei and Rui Li

11:50AM Predictive Event-Triggered Control based on Heuristic Dynamic Programming for Nonlinear Continuous-Time Systems [#15812]

Lu Dong, Xiangnan Zhong, Changyin Sun and Haibo He

Session Emotion: Emotion and motivation

Monday, July 13, 11:30AM-12:10PM, Room: Auditorium, Chair: Perlovsky, Leonid

11:30AM Artificial Motivations based on Drive-Reduction Theory in Self-Referential Model-Building Control Systems [#15499]

Moritz Schneider and Juergen Adamy

11:50AM Towards a Neural Model of Bonding in Self-Attachment [#15393]

David Cittern and Abbas Edalat

Session Finance1: Financial and commercial applications

Monday, July 13, 1:30PM-2:30PM, Room: Auditorium, Chair: Gashler, Michael

1:30PM Investing in Emerging Markets Using Neural Networks and Particle Swarm Optimisation [#15710]

Pascal Khoury and Denise Gorse

1:50PM Meta-Learning to Choose the Level of Analysis in Nested Data: A Case Study on Error Detection in Foreign Trade Statistics [#15546]

Mohammad Nozari Zarmehri and Carlos Soares

2:10PM A Hybrid Latent Variable Neural Network Model for Item Recommendation [#15058]

Michael Smith, Michael Gashler and Tony Martinez

Session EEGMEG1: EEG/MEG analysis and applications 1

Monday, July 13, 1:30PM-2:30PM, Room: Ballroom, Chair: Diwakar, Shyam

1:30PM Adaptive Parameterized AdaBoost Algorithm with Application in EEG Motor Imagery Classification [#15801]

Pratyusha Das, Arup Kumar Sadhu, Amit Konar, Basabdatta Sen Bhattacharya and Atulya K. Nagar

1:50PM Exploiting Point Source Approximation on Detailed Neuronal Models to Reconstruct Single Neuron Electric Field and Population LFP [#15474]

Harilal Parasuram, Bipin Nair, Giovanni Naldi, Egidio D'Angelo and Shyam Diwakar

2:10PM EEG Signal Analysis for BCI Application using Fuzzy System [#15455]

Thanh Nguyen, Saeid Nahavandi, Abbas Khosravi, Douglas Creighton and Imali Hettiarachchi

Session Manif2: Manifold learning and dimensionality reduction 2

Monday, July 13, 1:30PM-2:30PM, Room: Brehon, Chair: Wang, Xiaoping

1:30PM Improved Manifold Learning with Competitive Hebbian Rule [#15798]

Qiang Gan, Furao Shen and Jinxi Zhao

1:50PM Robust Semi-supervised Nonnegative Matrix Factorization [#15222]

Jing Wang, Feng Tian, Chang Hong Liu and Xiao Wang

2:10PM Correntropy Supervised Non-negative Matrix Factorization [#15508]

Zhang Wenju, Guan Naiyang, Tao Dacheng, Mao Bin, Huang Xuhui and Luo Zhigang

Session Sampling: Sampling

Monday, July 13, 1:30PM-2:30PM, Room: Park Suite, Chair: Carvalho, Andre

1:30PM From Cutting Planes Algorithms to Compression Schemes and Active Learning [#15601]

Ugo Louche and Liva Ralaivola

1:50PM An Evolutionary Sampling Approach for Classification with Imbalanced Data [#15687]

Everlandio Fernandes, Andre Carvalho and Andre Coelho

2:10PM Lattice point sets for efficient kernel smoothing models [#15285]

Cristiano Cervellera, Mauro Gaggero, Danilo Maccio' and Roberto Marcialis

Session Dyn2: Neurodynamics 2

Monday, July 13, 1:30PM-2:30PM, Room: Mangerton, Chair: Guo, Chengan; Guo; Wentao

1:30PM Neural network observer-based optimal control for unknown nonlinear systems with control constraints [#15459]

Yuzhu Huang and Hongde Jiang

1:50PM A Neurodynamic Optimization Approach to Synthesis of Linear Systems with Fault Detection via Robust Pole Assignment [#15159]

Xinyi Le and Jun Wang

2:10PM Spatio-temporal Map Formation Based on a Potential Function [#15187]

Prayag Gowgi and Shayan Garani

Session Finance2: Financial and commercial applications

Monday, July 13, 2:40PM-4:20PM, Room: Auditorium, Chair: Quek, Chai

2:40PM Financial Data Analysis Using The Informational Energy Unilateral Dependency Measure [#15653]

Angel Cataron, Razvan Andonie and Yvonne Chueh

3:00PM Three-MLP Ensemble Re-RX Algorithm and Recent Classifiers for Credit-Risk Evaluation [#15166]

Yoichi Hayashi, Yuki Tanaka, Shonosuke Yukita, Satoshi Nakano and Guido Bologna

3:20PM Case-based Reasoning Combined with Neural Networks for Credit Risk Analysis [#15660]

Cesar Silva, Germano Vasconcelos, Gabriel Silva and Hadautho Barros

3:40PM A PAA-PSO technique for investment strategies in the financial market [#15580]

Victor Souza, Rodrigo Brasileiro and Adriano Oliveira

4:00PM trading model: Self Reorganizing Fuzzy Associative Machine - forecasted MACD-Histogram (SeroFAM-fMACDH) [#15426]

Javan Tan, WeiGui jair Zhou and Chai Quek

Special Session ss23-2: Complex and memristive networks 2

Monday, July 13, 2:40PM-4:20PM, Room: Ballroom, Chair: Hardy, Leon

2:40PM Controllability of Multi-level States in Memristive Device Models using a Transistor as Current Compliance during SET Operation [#15667]

Anne Siemon, Stephan Menzel, Rainer Waser and Eike Linn

3:00PM Architecture and Simulation of a Hybrid Memristive Multiplier Network using Redundant Number Representation [#15725]

Dietmar Fey and Jonathan Martschinke

3:20PM An application of neurohydrodynamics to a Hopfield neural network [#15121]

Leon Hardy

3:40PM Gradient-descent-based learning in memristive crossbar arrays [#15548]

Manu V Nair and Piotr Dudek

4:00PM Mode-Locking in a Network of Kuramoto-like Oscillators [#15645]

Eugene Koskin, Dimitri Galayko, Orla Feely and Elena Blokhina

Session DeepNN1: Deep neural networks 1

Monday, July 13, 2:40PM-4:20PM, Room: Brehon, Chair: Louis, Sushil

2:40PM Deep Convolutional Neural Networks as Generic Feature Extractors [#15583]

Lars Hertel, Erhardt Barth, Thomas Kaester and Thomas Martinetz

3:00PM DeepSign: Deep Learning for Automatic Malware Signature Generation and Classification [#15763]

Omid E. David and Nathan S. Netanyahu

3:20PM Deep Learning Using Partitioned Data Vectors [#15301]

Ben Mitchell, Hasari Tosun and John Sheppard

3:40PM Face Recognition in Unconstrained Environments A Deep Architecture on A Small Training Set [#15744]

Mohammad Taghi Saffar, Banafsheh Rekabdar, Sushil Louis and Mircea Nicolescu

4:00PM Exploring Autoencoders for Unsupervised Feature Selection [#15172]

Chandra B. and Rajesh K. Sharma

Special Session ss13: Emerging Methodologies for Big Data Integration

Monday, July 13, 2:40PM-4:20PM, Room: Park Suite, Chair: Tagliaferri, Roberto

2:40PM An Automated String-Based Approach to White Matter Fiber-Bundles Clustering [#15386]

Francesco Cauteruccio, Claudio Stamile, Giorgio Terracina, Domenico Ursino and Dominique Sappey-Marinier

3:00PM Modelling Absence Epilepsy Seizure Data in the NeuCube Evolving Spiking Neural Network Architecture [#15691]

Elisa Capecci, Josafath I. Espinosa Ramos, Nadia Mammone, Nikola Kasabov, Jonas Duun-Henriksen, Troels Wesenberg Kjaer, Maurizio Campolo, Fabio La Foresta and Francesco C. Morabito

3:20PM Learning Vector Quantization and Permutation Entropy to Analyse Epileptic Electroencephalography [#15483]

Nadia Mammone, Jonas Duun-Henriksen, Troels W. Kjaer, Maurizio Campolo, Fabio La Foresta and Francesco C. Morabito

3:40PM Biomedical data integration and ontology-driven multi-facets visualization [#15182]

Carmen De Maio, Giuseppe Fenza, Vincenzo Loia and Mimmo Parente

4:00PM Multi omic oscillations in bacterial pathways [#15831]

Francesco Bardozzo, Pietro Lio and Roberto Tagliaferri

Session Neurosc2: Neuroscience 2: neurons, synapses, and circuits

Monday, July 13, 2:40PM-4:20PM, Room: Mangerton, Chair: Salles Chevitarese, Daniel

2:40PM Influence of the refractory period on neural networks based on the recognition of neural signatures [#15067]

Jose Luis Carrillo_Medina and Roberto Latorre

3:00PM Synaptic amplification by axo-shaft synapses in a pyramidal neuron model [#15114]

Youwei Zheng and Lars Schwabe

3:20PM Connectivity estimation of neural networks using a spike train kernel [#15245]

Taro Tezuka and Christophe Claramunt

3:40PM Introduction to CircuitML: Modeling Local Processing Units in the Drosophila Brain [#15153]

Daniel Salles Chevotarese, Dilza Szwarcman and Marley Vellasco

4:00PM Modulation Ratio of Layer 2/3 Cells in Primary Visual Cortex: A Model Based Study [#15161]

Dhanaraj Kakkanattu Jagalchandran and Basabi Bhaumik

Session Temporal: Time and temporal processes

Monday, July 13, 4:40PM-6:20PM, Room: Auditorium, Chair: Maniadakis, Michail

4:40PM Distal Dendrite Feedback in Hierarchical Temporal Memory [#15102]

Adam Kneller and John Thornton

5:00PM Artificial Agents Perceiving and Processing Time [#15644]

Michail Maniadakis and Panos Trahanias

5:20PM Learning Joint Representations for Order and Timing of Perceptual-Motor Sequences: a Dynamic Neural Field Approach [#15631]

Weronika Wojtak, Flora Ferreira, Wolfram Erlhagen and Estela Bicho

5:40PM Duration and Interval Hidden Markov Model for Sequential Data Analysis [#15752]

Hiromi Narimatsu and Hiroyuki Kasai

6:00PM Product Reservoir Computing: Time-Series Computation with Multiplicative Neurons [#15261]

Alireza Goudarzi, Shabani Alireza and Stefanovic Darko

Session EEGMEG2: EEG/MEG analysis and applications 2

Monday, July 13, 4:40PM-6:20PM, Room: Ballroom, Chair: Prasad, Girijesh

4:40PM Single-trial detection of realistic images with magnetoencephalography [#15711]

Hubert Cecotti and Girijesh Prasad

5:00PM A Hands Free Browser Using EEG and Voice Inputs [#15148]

Joy Bose, Singhai Amit, Trisal Ankur, Keshav Vinod and Dubey Utkarsh

5:20PM Reliable Seizure Prediction from EEG Data [#15062]

Vladimir Cherkassky, Brandon Veber, Jieun Lee, Gregory Worrell, Benjamin Brinkmann, Ned Patterson and Shiao Han-Tai

5:40PM Reward-based online learning in non-stationary environments: adapting a P300-speller with a "Backspace" key [#15588]

Emmanuel Dauce, Timothee Proix and Liva Ralaivola

6:00PM EEG-based Biometric Identification Using Local Probability Centers [#15093]

Chengsheng Mao, Bin Hu, Manman Wang and Moore Philip

Session DeepNN2: Deep neural networks 2

Monday, July 13, 4:40PM-6:20PM, Room: Brehon, Chair: Lee, Minho

4:40PM Deep Convolutional Network Neocognitron: Improved Interpolating-Vector [#15345]

Kunihiko Fukushima and Hayaru Shouno

5:00PM A novel deep learning by combining discriminative model with generative model [#15449]

Sangwook Kim, Jixiang Shen and Minho Lee

5:20PM Direct Conversion from Facial Myoelectric Signals to Speech using Deep Neural Networks [#15196]

Lorenz Diener, Matthias Janke and Tanja Schultz

5:40PM Resource-Constrained Classification Using a Cascade of Neural Network Layers [#15467]

Sam Leroux, Steven Bohez, Tim Verbelen, Bert Vankeirsbilck, Pieter Simoens and Bart Dhoedt

6:00PM Multi-Column Deep Neural Networks for Offline Handwritten Chinese Character Classification [#15350]

Dan Ciresan and Ueli Meier

Special Session ss26: Optimizing Neural Networks Using Evolutionary Computation and Swarm Intelligence

Monday, July 13, 4:40PM-6:20PM, Room: Park Suite, Chair: Yeh, Wei-Chang

4:40PM Solving reliability redundancy allocation problems with orthogonal simplified swarm optimization [#15220]

Wei-Chang Yeh, Yun-Zhi Jiang*, Vera Yuk Ying Chung and Xiangjian He

5:00PM Analysis and Evaluation of Smartphone-based Human Activity Recognition Using a Neural Network Approach [#15315]

Yongjin Kwon, Kyuchang Kang and Changseok Bae

5:20PM A Probability-Dynamic Particle Swarm Optimization for Object Tracking [#15348]

Feng Sha, Changseok Bae, Guang Liu, XiMeng Zhao, Yuk Ying Chung, WeiChang Yeh and Xiangjian He

5:40PM Competitive Two-Island Cooperative Co-evolution for Training Feedforward Neural Networks for Pattern Classification Problems [#15103]

Rohitash Chandra and Gary Wong

6:00PM Design Static Var Compensator Controller Using Artificial Neural Network Optimized By Modify Grey Wolf Optimization [#15614]

Al-Attar Mohamed, Ahmed El-Gaafary, Yahia Mohamed and Ashraf Hemeida

Session Neurosc3: Neuroscience 3: behavior, memory, and motivation

Monday, July 13, 4:40PM-6:20PM, Room: Mangerton, Chair: Mandali, Alekhya

4:40PM Spike-Timing Neuronal Modelling of Forgetting in Immediate Serial Recall [#15441]

Panagiotis Ioannou, Matthew Casey and Andre Gruning

5:00PM A computational basal ganglia model to assess the role of STN-DBS on Impulsivity in Parkinson's disease [#15029]

Alekhya Mandali and Srinivasa Chakravarthy V

5:20PM A Mushroom Bodies inspired spiking network for classification and sequence learning [#15288]

Paolo Arena, Marco Cali', Luca Patane', Agnese Portera and Roland Strauss

5:40PM Modeling pavlovian conditioning with multiple neuronal populations [#15630]

Maxime Carrere and Frederic Alexandre

6:00PM Comparison of meta-analysis approaches for neuroimaging studies of reward processing: A case study [#15237]

Manisha Chawla and Krishna P. Miyapuram

Plenary Poster Session Poster1: Poster session 1

Monday, July 13, 7:30PM-9:30PM, Room: * Poster hall, Chair: Yu, Xiao-Hua (Helen)

- P101 Random-Forest-Based Automated Cell Detection in Knife-Edge Scanning Microscope Rat Nissl Data [#15830]
Shashwat Lal Das, John Keyser and Yoonsuck Choe
- P102 A Modular Mixed-Signal CVNS Neural Network Architecture [#15609]
Farinoush Saffar, Mitra Mirhassani and Majid Ahmadi
- P103 A New Terminating Condition to Identify the Convergence of the Learning Process in Multi-Layer Feed-Forward Neural Networks [#15238]
Sean Shensheng Xu and Chi-Chung Cheung
- P104 Negotiation process for bi-objective multi-agent flexible neural tree model [#15670]
Marwa Ammar, Souhir Bouaziz, Adel M. Alimi and Ajith Abraham
- P105 Strategic Approach for Multiple-MLP Ensemble Re-RX Algorithm [#15165]
Yoichi Hayashi and Shota Fujisawa
- P106 Hierarchical Extreme Learning Machine for Unsupervised Representation Learning [#15562]
Wentao Zhu, Jun Miao, Laiyun Qing and Guang-Bin Huang
- P107 Comparison of Auto-encoders with Different Sparsity Regularizers [#15127]
Li Zhang and Yaping Lu
- P108 Enhanced Recurrent Network Training [#15197]
Amir Jafari and Martin Hagan
- P109 On the Dynamics of a Recurrent Hopfield Network [#15332]
Rama Garimella, Berkay Kicanaoglu and Moncef Gabbouj
- P110 Hopfield networks: from optimization to adaptive control [#15132]
Miguel Atencia and Gonzalo Joya
- P111 Deep Self-Organizing Map for Visual Classification [#15115]
Nan Liu, Jinjun Wang and Yihong Gong
- P112 Time Series Prediction via Two-step Clustering [#15443]
Clayton Smith and Donald Wunsch
- P113 Particle Swarm Optimization in an Adaptive Resonance Framework [#15442]
Clayton Smith and Donald Wunsch
- P114 A Novel Diversity-Guided Ensemble of Neural Network Based on Attractive And Repulsive Particle Swarm Optimization [#15167]
Fei Han, Dan Yang, Qing-Hua Ling and De-Shuang Huang
- P115 Image Segmentation using Fast Linking SCM [#15434]
Kun Zhan, Jinhui Shi, Qiaoqiao Li, Jicai Teng and Mingying Wang
- P116 Automatic Model Redundancy Reduction for Fast Back-Propagation for Deep Neural Networks in Speech Recognition [#15075]
Yanmin Qian, Tianxing He, Wei Deng and Kai Yu
- P117 Online Sequential Classification of Imbalanced Data by Combining Extreme Learning Machine and improved SMOTE Algorithm [#15492]

Wentao Mao, Jinwan Wang and Liyun Wang

P118 Improving Deep Neural Network Ensembles using Reconstruction Error [#15362]

Wenhao Huang, Haikun Hong, Kaigui Bian, Xiabing Zhou, Guojie Song and Kunqing Xie

P119 A Switch Kernel Width Method of Correntropy for Channel Estimation [#15515]

Weihua Wang, Jihong Zhao, Hua Qu, Badong Chen and Jose Principe

P120 Linear Discriminant Analysis with an Information Divergence Criterion [#15600]

Matthew Emigh, Evan Kriminger and Jose Principe

P121 A Variable Step-Size Adaptive Algorithm under Maximum Correntropy Criterion [#15625]

Ren Wang, Badong Chen, Nanning Zheng and Jose Principe

P122 Learning Discriminant Isomap for Dimensionality Reduction [#15039]

Yang Bo, Xiang Ming and Zhang Yupei

P123 Discriminant Sparse Coding with Geometrical Constraint [#15553]

Hanchao Zhang and Jinhua Xu

P124 Ranking Algorithm Based on Relational Topic Model [#15143]

Yuxin Ding, Shengli Yan, Yang Xiao and Tingting Tao

P125 Input Space Versus Feature Space in Kernel-Based Interval Fuzzy C-Means Clustering [#15027]

Bruno Pimentel, Anderson Costa and Renata Souza

P126 Learning Convolutional Features for Storage and Transmission between Networked Sensors [#15786]

Ruairi de Frein

P127 Mixed Generative and Supervised Learning Modes in Deep Predictive Coding Networks [#15668]

Eder Santana and Jose C. Principe

P128 Incremental Pairwise Clustering for Large Proximity Matrices [#15522]

Sambu Seo, Johannes Mohr, Ningfei Li, Andreas Horn and Klaus Obermayer

P129 Hierarchical Semi-Supervised Clustering using KSC based model [#15582]

Siamak Mehrkanon, Oscar Mauricio Agudelo, Raghvendra Mall and Johan A.K. Suykens

P130 Parallel flow in Deep Predictive Coding Networks [#15666]

Eder Santana, Goktug T. Cinar and Jose C. Principe

P131 Non-negative Matrix Factorization based on Gamma-Divergence [#15559]

Kohei Machida and Takashi Takenouchi

P132 Independent Component Analysis with an Inverse Problem Motivated Penalty Term [#15539]

Jouni Puuronen and Aapo Hyvarinen

P133 Spectral Clustering of High-dimensional Data via Nonnegative Matrix Factorization [#15280]

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P199 A New Crossbar Architecture Based on Two Serial Memristors with Threshold [#15036]

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- P205 Automatic Fault Detection and Diagnosis for Photovoltaic Systems using Combined Artificial Neural Network and Analytical Based Methods [#15324]
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- P206 Adaptive Approaches for Keystroke Dynamics [#15283]
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- P207 Cryptography using Artificial Intelligence [#15376]
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- P208 MAS-DEWS: A Multi-Agent System for Predicting Africa's Drought [#15804]
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- P209 Consistency Driven Opinion Formation Modelling in Presence of External Sources [#15814]
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- P210 Dissolved Oxygen Control System Based on the T-S Fuzzy Neural Network [#15334]
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- P211 Smart Meter Profiling For Health Applications [#15802]
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- P212 Real-Time Video Object Recognition Using Convolutional Neural Network [#15632]
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- P213 A novel dictionary learning algorithm for image representation [#15793]
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- P214 A neural approach to drugs monitoring for personalized medicine [#15479]
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- P216 Packing Equal Circles in a Damaged Square [#15818]
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- P217 An Efficient Hybrid Algorithm for Fire Flame Detection [#15451]

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P218 Enhancing ANN-guided MOPSO through Active Learning [#15356]

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P219 Interactive Image Segmentation using Particle Competition and Cooperation [#15425]

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P220 Intruder Recognition Using ECG Signal [#15662]

Eros Pasero, Eugenio Balzanelli and Federico Caffarelli

P221 Short-term Rainfall Time Series Prediction with incomplete data [#15042]

Rodriguez Rivero Cristian, Pucheta Julian, Patino Daniel, Otano Paula, Baumgartner Josef, Laboret Sergio and Sauchelli Victor

P222 Design of the 2015 ChaLearn AutoML Challenge [#15695]

Isabelle Guyon, Kristin Bennett, Gavin Cawley, Hugo Jair Escalante, Sergio Escalera, Tin Kam Ho, Nuria Macia, Bisakha Ray, Alexander Statnikov, Evelyne Viegas and Merhreen Saeed

Tuesday, July 14, 2015

Plenary Talk Plenary2: Plenary session: Mario Polycarpou

Tuesday, July 14, 8:00AM-9:00AM, Room: Auditorium, Chair: Wunsch, Donald C.

Session Social: Social media analysis

Tuesday, July 14, 9:10AM-10:30AM, Room: Auditorium, Chair: King, Irwin

9:10AM Discovery of Localized Spatio-Temporal Patterns from Location-based SNS by Clustering Users [#15460]

Ken-ichiro Nishioka, Yoshitatsu Matsuda and Kazunori Yamaguchi

9:30AM Online Diffusion Source Detection in Social Networks [#15263]

Haishuai Wang, Peng Zhang, Ling Chen, Huan Liu and Chengqi Zhang

9:50AM Collaborative Filtering via Co-Factorization of Individuals and Groups [#15435]

Yihai Huang and James Kwok

10:10AM Group Buying in Social Coupon: Myths or Facts [#15827]

Yuanyuan Man, Mantian Hu and Irwin King

Special Session ss32-1: Autonomous Machine Learning for Cyber-Physical Systems 1

Tuesday, July 14, 9:10AM-10:30AM, Room: Ballroom, Chair: Ozawa, Seiichi

9:10AM A Federated Network Online Network Traffics Analysis Engine for Cybersecurity [#15415]

Shaoning Pang, Yiming Peng, Tao Ban, Daisuke Inoue and Abdolhossein Sarrafzadeh

9:30AM Interactive Online Learning for Obstacle Classification on a Mobile Robot [#15478]

Viktor Losing, Barbara Hammer and Heiko Wersing

9:50AM A Study on Association Rule Mining of Darknet Big Data [#15768]

Tao Ban, Masashi Eto, Shanqing Guo, Daisuke Inoue, Koji Nakao and Runhe Huang

10:10AM Human Intention Understanding Based On Object Affordance and Action Classification [#15445]

Zhibin Yu, Sangwook Kim, Rammohan Mallipeddi and Minho Lee

Special Session ss17: Autonomous Learning from Big Data

Tuesday, July 14, 9:10AM-10:30AM, Room: Brehon, Chair: Angelov, Plamen

9:10AM Typicality Distribution Function - A New Densitybased Data Analytics Tool [#15244]

Plamen Angelov

9:30AM Evolving Clustering, Classification and Regression with TEDA [#15366]

Dmitry Kangin and Plamen Angelov

9:50AM Data Mapping by Restricted Boltzmann Machines for Social Circles Detection [#15542]

Jesus Alonso, Roberto Paredes and Paolo Rosso

10:10AM Automated online feature selection and learning from high-dimensional streaming data using an ensemble of Kohonen neurons [#15001]

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Session Theory1: Neural networks theory 1

Tuesday, July 14, 9:10AM-10:30AM, Room: Park Suite, Chair: Siegelmann, Hava

9:10AM Lie Algebra-Valued Neural Networks [#15723]

Calin-Adrian Popa

9:30AM Implementation of Universal Turing Machines via Fixed-precision Neurons [#15833]

Nicholas Hobbs and Hava Siegelmann

9:50AM An Analysis of Dynamic Cortex Memory Networks [#15678]

Sebastian Otte, Marcus Liwicki and Andreas Zell

10:10AM The MC-ELM: Learning an ELM-like network with Minimum VC dimension [#15555]

Jayadeva Dr, Sumit Soman and Amit Bhaya

Session Predict: Prediction and forecasting

Tuesday, July 14, 9:10AM-10:30AM, Room: Mangerton, Chair: Blumenstein, Michael

9:10AM Forecasting Solar Power Generated by Grid Connected PV Systems Using Ensembles of Neural Networks [#15429]

Mashud Rana, Irena Koprinska and Vassilios Agelidis

9:30AM Towards robust flood forecasts using neural networks [#15464]

Seyyed Adel Alavi Fazel, Hamid Mirfenderesk, Tomlinson Rodger and Michael Blumenstein

9:50AM On the Method for Data Streams Aggregation to Predict Shoppers Loyalty [#15311]

Vladimir Nikulin

10:10AM A Configurable Deep Network for High-Dimensional Clinical Trial Analysis [#15811]

James O' Donoghue, Mark Roantree and Martin Van Boxtel

Panel Session Invited2: Invited Speaker: Vladimir Cherkassky

Tuesday, July 14, 10:50AM-11:30AM, Room: Auditorium, Chair: Morabito, Francesco Carlo

Special Session ss32-2: Autonomous Machine Learning for Cyber-Physical Systems 2

Tuesday, July 14, 10:50AM-12:10PM, Room: Ballroom, Chair: Liu, Derong

10:50AM Incremental learning on a budget and a quick calculation method using a tree-search algorithm [#15746]

Akihisa Kato, Hirohito Kawahara and Yamauchi Koichiro

11:10AM An Autonomous Online Malicious Spam Mail Detection System Using Extended RBF Network [#15785]

Aminah Ali Siti Hajar, Seiichi Ozawa, Junji Nakazato, Tao Ban and Jumpei Shimamura

11:30AM A Neural Path Integration Mechanism for Adaptive Vector Navigation in Autonomous Agents [#15190]

Dennis Goldschmidt, Sakyasingha Dasgupta, Florentin Woergoetter and Poramate Manoonpong

11:50AM Data-driven Virtual Reference Controller Design for High-order Nonlinear Systems via Neural Network [#15111]

Pengfei Yan, Derong Liu and Ding Wang

Special Session ss25: Computational Intelligence Applications to Environmental Sustainability and Sustainable Development: Theory and Applications

Tuesday, July 14, 10:50AM-12:10PM, Room: Brehon, Chair: Tambouratzis, Tatiana; Grozavu, Nistor

10:50AM Adaptive Memetic Algorithm for the Job Shop Scheduling Problem [#15205]

Jakub Nalepa, Marcin Cwiek and Michal Kawulok

11:10AM How reliable is the Environmental Sustainability Index 2005? [#15742]

Tatiana Tambouratzis

11:30AM Approximate Dynamic Programming for Control of a Residential Water Heater [#15654]

Matthew Motoki, Monica Umeda, Matthias Fripp and Tony Kuh

11:50AM A RBF Neural Network applied to predict soil Field Capacity and Permanent Wilting Point at Brazilian Coast [#15507]

Giorgia Carvalho, Diego Brandao, Diego Haddad, Vinicius Forte and Marcos Ceddia

Session Theory2: Neural networks theory 2

Tuesday, July 14, 10:50AM-12:10PM, Room: Park Suite, Chair: Farkas, Igor

10:50AM A Method for Finding Similarity between Multi-Layer Perceptrons by Forward Bipartite Alignment [#15698]

Stephen Ashmore and Michael Gashler

11:10AM Regularity and Randomness in Modular Network Structures for Neural Associative Memories [#15792]

Gouhei Tanaka, Toshiyuki Yamane, Daiju Nakano, Ryosho Nakane and Yasunao Katayama

11:30AM On the Performance of Quaternionic Bidirectional Auto-Associative Memory [#15594]

Toshifumi Minemoto, Tejiro Isokawa, Masaki Kobayashi, Haruhiko Nishimura and Nobuyuki Matsui

11:50AM Computational Analysis of the Bidirectional Activation-based Learning in Autoencoder Task [#15322]

Peter Csiba and Igor Farkas

Session Ensemble: Ensemble learning

Tuesday, July 14, 10:50AM-12:10PM, Room: Mangerton, Chair: Cavalcanti, George

10:50AM Adaptive Skew-Sensitive Fusion of Ensembles and their Application to Face Re-Identification [#15234]

Miguel De-la-Torre, Eric Granger and Robert Sabourin

11:10AM A Bootstrap-Based Iterative Selection for Ensemble Generation [#15602]

Dayvid Oliveira, Thyago Porpino, George Cavalcanti and Tsang Ren

11:30AM An Analysis of Diversity Measures for the dynamic design of ensemble of classifiers [#15823]

Jose Lustosa-Filho, Anne Canuto and Joao Carlo Xavier Junior

11:50AM A Binary Ensemble Classifier for High-Frequency Trading [#15468]

Everton Silva, Humberto Brandao, Douglas Castilho and Adriano Pereira

Session SVM1: Support Vector Machines 1

Tuesday, July 14, 11:30AM-12:10PM, Room: Auditorium, Chair: Anguita, Davide

11:30AM Shrinkage Learning to Improve SVM with Hints [#15209]

Luca Oneto, Alessandro Ghio, Sandro Ridella and Davide Anguita

11:50AM A Transductive SVM with Quasi-linear Kernel Based on Cluster Assumption for Semi-Supervised Classification [#15302]

Bo Zhou, Di Fu, Chao Dong and Jinglu Hu

Plenary Talk Plenary3: Plenary session: Vincenzo Piuri

Tuesday, July 14, 1:30PM-2:30PM, Room: Auditorium, Chair: Prokhorov, Danil

Session SVM2 : Support Vector Machines 2

Tuesday, July 14, 2:40PM-4:20PM, Room: Auditorium, Chair: Carvalho, Andre

2:40PM Optimizing Working Sets for Training Support Vector Regressors by Newton's Method [#15028]

Shigeo Abe

3:00PM Graph-based Semi-supervised Support Vector Data Description for Novelty Detection [#15419]

Phuong Duong, Van Nguyen, Mi Dinh, Trung Le, Dat Tran and Wanli Ma

3:20PM To tune or not to tune: recommending when to adjust SVM hyper-parameters via Meta-learning [#15531]

Rafael G. Mantovani, Andre L. D. Rossi, Bernd Bischl, Joaquin Vanschoren and Andre C. P. L. F. Carvalho

3:40PM Multiple SVM-RFE for Multi-class Gene Selection on DNA Microarray Data [#15216]

Li Zhang and XiaoJuan Huang

4:00PM Improving ESVM with Generalized Cross-Validation [#15053]

Tianshu Feng, Fuzhen Zhuang and Qing He

Session RNN: Recurrent neural networks

Tuesday, July 14, 2:40PM-4:20PM, Room: Ballroom, Chair: Hussain, Abir

2:40PM Transient Phenomena Prediction Using Recurrent Neural Networks [#15578]

Jonathan Guerra, Patricia Klotz, Beatrice Laurent and Fabrice Gamboa

3:00PM Computational Capabilities of Recurrent Neural Networks Based on their Attractor Dynamics [#15536]

Jeremie Cabessa and Alessandro Villa

3:20PM Recurrent Convolutional Neural Networks for Object-Class Segmentation of RGB-D Video [#15773]

Mircea Serban Pavel, Hannes Schulz and Sven Behnke

3:40PM Discriminative Learning and Inference in the Recurrent Temporal RBM for Melody Modelling [#15593]

Srikanth Cherla, Son Tran, Artur d'Avila Garcez and Tillman Weyde

4:00PM On the Existence of Hopfield Neural Networks: Synthesis of Hopfield Type Associative Memories [#15010]

Garimella Rama Murthy and Moncef Gabbouj

Special Session ss03: Cognition and Development

Tuesday, July 14, 2:40PM-4:20PM, Room: Brehon, Chair: Di Nuovo, Alessandro

2:40PM Deterministic chaos in mobile robots [#15740]

Federico Da Rold

3:00PM Neural-Symbolic Monitoring and Adaptation [#15627]

Alan Perotti, Artur d'Avila Garcez and Guido Boella

3:20PM Symbolic associations in neural network activations: representations in the emergence of communication [#15616]

Emerson Oliveira and Angelo Loula

3:40PM Brains as Naturally Emerging Turing Machines [#15807]

Juyang Weng

4:00PM Data-point and Feature Selection of Motor Imagery EEG Signals for Neural Classification of Cognitive Tasks in Car-Driving [#15797]

Anuradha Saha, Amit Konar, Pratyusha Das, Basabdatta Sen Bhattacharya and Atulya K. Nagar

Session Theory3: Neural networks theory 3

Tuesday, July 14, 2:40PM-4:20PM, Room: Park Suite, Chair: Battiti, Roberto

2:40PM Stochastic Local Search for Direct Training of Threshold Networks [#15699]

Mauro Brunato and Roberto Battiti

3:00PM Reliable estimation of a neural network's domain of validity through interval analysis based inversion [#15734]

Stavros Adam, Dimitrios Karras, George Magoulas and Michael Vrahatis

3:20PM A Bounded Neural Network for Open Set Recognition [#15579]

Douglas Cardoso, Felipe Franca and Joao Gama

3:40PM The Generalized Group Lasso [#15480]

Carlos M. Alaiz and Jose R. Dorronsoro

4:00PM Quasi-Newton Learning Methods for Complex-Valued Neural Networks [#15258]

Calin-Adrian Popa

Special Session ss36: Ensemble Systems and Machine Learning

Tuesday, July 14, 2:40PM-4:20PM, Room: Mangerton, Chair: Ludermir, Teresa

2:40PM META-DES.H: a dynamic ensemble selection technique using meta-learning and a dynamic weighting approach [#15456]

Rafael M. O. Cruz, Robert Sabourin and George D. C. Cavalcanti

3:00PM Differential Evolution and Meta-Learning for Dynamic Ensemble of Neural Network Classifiers [#15400]

Tiago Lima and Teresa Ludermir

3:20PM Multi-Privacy Biometric Protection Scheme using Ensemble Systems [#15547]

Damasceno Marcelo, Canuto Anne and Poh Norman

3:40PM Growing Hierarchical Trees for Data Stream Clustering and Visualization [#15185]

Nhat-Quang Doan, Mohammed Ghesmoune, Hanane Azzag and Mustapha Lebbah

4:00PM Probabilistic Relational Models with Clustering Uncertainty [#15113]

Anthony Coutant, Philippe Leray and Hoel Le Capitaine

Session SVM3: Support Vector Machines 3

Tuesday, July 14, 4:40PM-6:20PM, Room: Auditorium, Chair: Zhang, Li

4:40PM L3-SVM: a LifeLong Learning Method for SVM [#15149]

Youlu Xing, Furao Shen, Chaomin Luo and Jinxi Zhao

5:00PM A fast approximation algorithm for 1-norm SVM with squared loss [#15061]

Li Zhang, Weida Zhou, Zhao Zhang and Jiwen Yang

5:20PM A PARTAN-Accelerated Frank-Wolfe Algorithm for Large-Scale SVM Classification [#15193]

Emanuele Frandi, Ricardo Nanculef and Johan A. K. Suykens

5:40PM Least Square Support Vector Machine for Large-scale Dataset [#15430]

Khanh Nguyen, Trung Le, Vinh Lai, Duy Nguyen, Dat Tran and Wanli Ma

6:00PM Support Vector Machines and Strictly Positive Definite Kernel: The Regularization Hyperparameter is More Important than the Kernel Hyperparameters [#15210]

Luca Oneto, Alessandro Ghio, Sandro Ridella and Davide Anguita

Special Session ss29: Modeling and Forecasting Financial and Commodity Markets by Neural Networks

Tuesday, July 14, 4:40PM-6:20PM, Room: Ballroom, Chair: Panella, Massimo; Girijesh, Prasad

4:40PM A Graphical Model Framework for Stock Portfolio Construction with Application to a Neural Network Based Trading Strategy [#15124]

Mininder Sethi and Philip Treleaven

5:00PM Maximum Length Weighted Nearest Neighbor Approach for Electricity Load Forecasting [#15753]

Tommaso Colombo, Irena Koprinska and Massimo Panella

5:20PM A Prediction Model for High-Frequency Financial Time Series [#15304]

Ricardo de A. Araujo, Adriano L. I. Oliveira and Silvio R. de L. Meira

5:40PM Kanban Cell Neuron Network: Stock Trading System (KCNSTS) [#15130]

Colin James III

6:00PM Prediction of Solar Cycle 24 Using a Connectionist Model of the Emotional System [#15808]

Mahboobeh Parsapoor, Mahboobeh Parsapoor, Urban Blistrup and Bertil Svensson

Special Session ss27: Models of Cognitive-Emotional Interactions

Tuesday, July 14, 4:40PM-6:20PM, Room: Brehon, Chair: Levine, Daniel

4:40PM Modelling Emotional Attachment: an Integrative Framework for Architectures and Scenarios. [#15232]

Dean Petters and Everett Waters

5:00PM Mystery in Experimental Psychology, Aesthetic Emotions [#15296]

Leonid Perlovsky

5:20PM A Minimal Architecture for General Cognition [#15673]

Michael S. Gashler, Zachariah Kindle and Michael R. Smith

5:40PM Introduction to Self-attachment and its Neural Basis [#15714]

Abbas Edalat

6:00PM A Neural Network Model of Decisions on the Asian Disease Problem [#15292]

Bakur AlQaudi, Daniel Levine and Frank Lewis

Session Language: Natural language processing

Tuesday, July 14, 4:40PM-6:20PM, Room: Park Suite, Chair: Hagiwara, Masafumi

4:40PM A Cascade of Linguistic CMAC Neural Networks for Decision Making [#15198]

Hongmei He, Zhenhuan Zhu, Ashutosh Tiwari and Mills Andrew

5:00PM Integrating Word Embeddings and Traditional NLP Features to Measure Textual Entailment and Semantic Relatedness of Sentence Pairs [#15275]

Jiang Zhao, Man Lan, Zheng-Yu Niu and Yue Lu

5:20PM Is Learning by Reading a Book Better Than Watching a Movie? A Computational Analysis of Semantic Concept Network Growth During Text and Multimedia Comprehension [#15688]

Naser Al Madi and Javed Khan

5:40PM A Natural Language Processing Neural Network Comprehending English [#15309]

Yuanzhi Ke and Masafumi Hagiwara

6:00PM Generating Image Description by Modeling Spatial Context of an Image [#15541]

Kan Li and Lin Bai

Session BioApp: Biomedical applications

Tuesday, July 14, 4:40PM-6:20PM, Room: Mangerton, Chair: Li, Kan

4:40PM Hierarchical Classification of Gene Ontology-based Protein Functions with Neural Networks [#15290]

Ricardo Cerri, Rodrigo Barros and Andre Carvalho

5:00PM Hierarchical Dirichlet Process Hidden Markov Model for Unsupervised Bioacoustic Analysis [#15663]

Marius Bartcus, Faicel Chamroukhi and Hervé Glotin

5:20PM New Insights into The Landscape Relationships of Host Response to Bacterial Pathogens [#15206]

Xiaoyao Yin, Lu Han, Naiyang Guan, Yun Bai, Cong Niu, Hui Bai, Xiaochen Bo and Zhigang Luo

5:40PM Diagnosis of Pneumonia From Sounds Collected Using Low Cost Cell Phones [#15044]

Insu Song

6:00PM An insight on complexity measures and classification in microarray data [#15018]

Veronica Bolon-Canedo, Laura Moran-Fernandez and Amparo Alonso-Betanzos

Plenary Poster Session Poster2: Poster session 2

Tuesday, July 14, 7:30PM-9:30PM, Room: * Poster hall, Chair: Yu, Xiao-Hua (Helen)

P301 sEMG-Based Torque Estimation for Robot-Assisted Lower Limb Rehabilitation [#15257]

Long Peng, Zeng-Guang Hou, Nikola Kasabov, Jin Hu, Liang Peng and Wei-Qun Wang

P302 Simplified and Gradual Information Control for Improving Generalization Performance of Multi-Layered Neural Networks [#15294]

Ryotaro Kamimura

P303 State Preserving Extreme Learning Machine for Face Recognition [#15724]

Md. Zahangir Alom, Paheding Sidike, Vijayan Asari and Tarek Taha

P304 A Non-Sigmoidal Activation Function for Feedforward Artificial Neural Networks [#15247]

Pravin Chandra, Udayan Ghose and Apoorvi Sood

P305 A Memetic Algorithm Based Extreme Learning Machine for Classification [#15157]

Yongshan Zhang, Zhihua Cai, Jia Wu, Xinxin Wang and Xiaobo Liu

P306 A Pragmatic Approach to Multi-Class Classification [#15697]

Thomas Kopinski, Stephane Magand, Uwe Handmann and Alexander Gepperth

P307 The Neural-SIFT Feature Descriptor for Visual Vocabulary Object Recognition [#15551]

Sybren Jansen, Amirhosein Shantia and Marco Wiering

P308 Morphological Extreme Learning Machines Applied to Detect and Classify Masses in Mammograms [#15705]

Washington Azevedo, Sidney Lima, Isabela Fernandes, Arthur Rocha, Filipe Cordeiro, Abel Silva-Filho and Wellington Santos

P309 Proof of Hidden Node Number in MLP and Experiments on Well Log Data Inversion [#15255]

Kou-Yuan Huang, Liang-Chi Shen and Jiun-Der You

P310 Fast Convergence of Extended Rademacher Complexity Bounds [#15211]

Luca Oneto, Alessandro Ghio, Sandro Ridella and Davide Anguita

P311 Learning Rule for Associative Memory in Recurrent Neural Networks [#15372]

Theju Jacob and Wesley Snyder

P312 Application of Cooperative Neuro-evolution of Elman Recurrent Networks for a Two-Dimensional Cyclone Track Prediction for the South Pacific Region [#15180]

Rohitash Chandra, Kavina Dayal and Nicholas Rollings

P313 Selective Potentiality Maximization for Input Neuron Selection in Self-Organizing Maps [#15382]

Ryotaro Kamimura and Ryoza Kitajima

P314 Sensor Signal Clustering with Self-Organizing Maps [#15431]

Razvan Popovici and Razvan Andonie

P315 EEG Classification to Determine the Degree of Pleasure Levels in Touch-Perception of Human Subjects [#15642]

Anuradha Saha, Amit Konar, Basabdatta Sen Bhattacharya and Atulya K. Nagar

P316 Generalized Constraint Neural Network Regression Model Subject to Equality Function Constraints [#15335]

Linlin Cao and Baogang Hu

P317 An Efficient Learning Method for RBF Neural Networks [#15685]

Maryam Pazouki, Zijun Wu, Zhixing Yang and Dietmar Moeller

P318 Local Radial Basis Function Network Regressor with Feature Importance Optimization [#15094]

Yu-Ann Chen and Pau-Choo Chung

P319 FIE-FCMAC: A Fuzzy CMAC using Fuzzy Interpolation and Extrapolation [#15265]

WeiGui jair Zhou, Chai Quek and Douglas Leslie Maskell

P320 Bio-inspired hierarchical framework for multi-view face detection and pose estimation [#15570]

Niall McCarroll, Ammar Belatreche, Jim Harkin and Yuhua Li

P321 Arithmetic Computing via Rate Coding in Neural Circuits with Spike-triggered Adaptive Synapses [#15776]

Sushrut Thorat and Bipin Rajendran

P322 Knowledge Extraction Using Probabilistic Reasoning: An Artificial Neural Network Approach [#15364]

Chelsea Dobbins and Paul Fergus

P323 Face Recognition Using Special Neural Networks [#15191]

Ernst Kussul and Tetyana Baydyk

P324 A Label Compression Coding Approach through Maximizing Dependence between Features and Labels for Multi-label Classification [#15226]

Lei Cao and Jianhua Xu

P325 Using Classifier Diversity to Handle Label Noise [#15043]

Michael Smith and Tony Martinez

P326 In-Training and Post-Training Generalization Methods: the case of ppar alpha and ppar gamma agonists [#15410]

Babak Keshavarz-Hedayati, Pan Guangyuan, Ali Jooya and Nikitas Dimopoulos

P327 A Constrained Recursive Least Squares Algorithm For Adaptive Combination of Multiple Models [#15008]

Xia Hong and Yu Gong

P328 Efficient Conformal Regressors using Bagged Neural Nets [#15690]

Ulf Johansson, Cecilia Sonstrod and Henrik Linusson

P329 Learning from Neighborhood for Classification with Local Distribution Characteristics [#15473]

Chengsheng Mao, Bin Hu, Manman Wang and Moore Philip

P330 Real-time occupancy estimation using environmental parameters [#15715]

Mustafa Khalid Masood, Soh Yeng Chai and Victor Chang

P331 Class-Preserving Manifold Learning for Detection and Classification [#15775]

Puoya Tabaghi and Mahmood R. Azimi-Sadjadi

P332 Incremental Probabilistic Classification Vector Machine with linear costs [#15145]

Frank-Michael Schleif, Huanhuan Chen and Peter Tino

P333 Epidemiological Time Series Forecasted with a Time Varying Auto-Adaptive Neural Network [#15387]

Antonio Ballarin, Simona Gervasi, Kristian A. Gervasi Vidal, Marco M Ballarin, Marco Di Francesco, Roberto Tonelli and Giovanni Ballarin

P334 A Learning Scheme Based on Similarity Functions for Affective Common-Sense Reasoning. [#15517]

Federica Bisio, Paolo Gastaldo, Rodolfo Zunino and Erik Cambria

P335 Some Further Evidence about Magnification and Shape in Neural Gas [#15395]

Giacomo Parigi, Andrea Pedrini and Marco Piastra

P336 Stock Price Prediction based on Stock-Specific and Sub-Industry-Specific News Articles [#15353]

Yauheniya Shynkevich, T. M. McGinnity, Sonya Coleman and Ammar Belatreche

P337 Low Rank Sequential Subspace Clustering [#15063]

Yi Guo, Junbin Gao, Feng Li, Stephen Tierney and Ming Yin

P338 Meta-Path based Nonnegative Matrix Factorization for Clustering on Multi-type Relational Data [#15371]

Yangyang Zhao, Zhengya Sun, Changsheng Xu and Hongwei Hao

P339 Applying the Coral Reefs Optimization Algorithm to Clustering Problems [#15815]

Inacio Medeiros, Joao-Carlos Xavier-Junior and Canuto Anne

P340 Online Detection and Modeling of Safety Boundaries for Aerospace Applications using Active Learning and Bayesian Statistics [#15458]

Yuning He

P341 Geometric Approach of Quasi-Linear Kernel Composition for Support Vector Machine [#15158]

Weite Li and Jinglu Hu

P342 Filtering SAR imagery for edge detection using support value transform [#15298]

Li Zhang, Weida Zhou and Bangjun Wang

P343 Using Support Vector Machines and Two Dimensional Discrete Cosine Transform in Speech Automatic Recognition [#15200]

Gracieth Gracieth Cavalcanti Batista and Washington Silva

P344 Multi-Kernel Probability Distribution Regressions [#15432]

Pingping Zhu, Hongchuan Wei, Wenjie Lu and Silvia Ferrari

P345 PAC-Bayes Analysis for Twin Support Vector Machines [#15117]

Xijiong Xie and Shiliang Sun

P346 Face Recognition using Support Vector Machine and Multiscale Directional Image Representation Methods: A comparative study [#15608]

Daniel Costa, Sarajane Peres, Pollyana Mustaro and Clodoaldo Lima

P347 Improved Multi-kernel SVM for Multi-modal and Imbalanced Dialogue Act Classification [#15249]

Yucan Zhou, Xiaowei Cui, Qinghua Hu and Yuan Jia

P348 Solving the Data Imbalance Problem of P300 Detection via Random Under-Sampling Bagging SVMs [#15800]

Xiaofeng Shi, Guoqiang Xu, Furao Shen and Jinxi Zhao

P349 Benchmarking the Semi-Supervised Naive Bayes Classifier [#15558]

Awat Saeed, Gavin Cawley and Anthony Bagnall

P350 Semi-Supervised Min-Max Modular SVM [#15333]

Yan-Ping Wu and Yun Li

P351 Sparse Density Estimation On Multinomial Manifold Combining Local Component Analysis [#15015]

Xia Hong and Junbin Gao

- P352 Collaborative Clustering with Heterogeneous Algorithms [#15107]
Jeremie Sublime, Nistor Grozavu, Younes Bennani and Antoine Cornuejols
- P353 An Efficient Recognition Algorithm for Restricted Bayesian Networks [#15065]
Yuuji Ichisugi and Naoto Takahashi
- P354 Threshold Optimization of Pseudo-Inverse Linear Discriminants Based on Overall Accuracies [#15728]
Tian Tian, Ji Wang and Daqi Gao
- P355 An Extended Fuzzy Local Information C-Means Clustering Algorithm [#15020]
Lili Hou, Le Zhang, Qiuying Yang and Ying Wen
- P356 Two-layer Mixture of Factor Analyzers with Joint Factor Loading [#15104]
Xi Yang, Huang Kaizhu, Zhang Rui and John Yannis Goulermas
- P357 An investigation into the use of subspace methods for face detection [#15584]
Salaheddin Alakkari, Eugene Gath and John James Collins
- P358 A Multi-label Feature Selection Algorithm Based on Multi-objective Optimization [#15139]
Jing Yin, Tengfei Tao and Jianhua Xu
- P359 Feature Selection using Deep Neural Networks [#15503]
Debaditya Roy, Sri Rama Murty K. and Krishna Mohan C.
- P360 Improving Load Forecast Accuracy by Clustering Consumers using Smart Meter Data [#15176]
Abbas Shahzadeh, Abbas Khosravi and Saeid Nahavandi
- P361 A Differential Evolution-Based Method for Class-Imbalanced Cost-Sensitive Learning [#15219]
Chen Qiu, Liangxiao Jiang and Ganggang Kong
- P362 Effectiveness of Random Search in SVM hyper-parameter tuning [#15557]
Rafael G. Mantovani, Andre L. D. Rossi, Bernd Bischl, Joaquin Vanschoren and Andre C. P. L. F. Carvalho
- P363 Face Expression Recognition with a 2-Channel Convolutional Neural Network [#15380]
Dennis Hamester, Pablo Barros and Stefan Wermter
- P364 A Combination of Multi-state Activation Functions, Mean-normalisation and Singular Value Decomposition for Learning Deep Neural Networks [#15052]
Chenghao Cai, Dengfeng Ke, Yanyan Xu and Kaile Su
- P365 Regularizing Neural Networks with Adaptive Local Drop [#15422]
Binbin Cao, Jianmin Li and Bo Zhang
- P366 Forecasting the Weather of Nevada: A Deep Learning Approach [#15760]
Moinul Hossain, Banafsheh Rekabdar, Sushil Louis and Sergiu Dascalu
- P367 Analysis of Function of Rectified Linear Unit Used in Deep learning [#15433]
Kazuyuki Hara, Daisuke Saito and Hayaru Shouno
- P368 Stochastic Least Squares Learning for Deep Architectures [#15330]
Girish Kumar, Jian Min Sim, Eng Yeow Cheu and Xiaoli Li

- P369 Optimized Deep Belief Networks on CUDA GPUs [#15341]
Teng Li, Yong Dou, Jingfei Jiang, Yueqing Wang and Qi Lv
- P370 An Empirical Analysis of Different Sparse Penalties for Autoencoder in Unsupervised Feature Learning [#15423]
Nan Jiang, Wenge Rong, Baolin Peng, Yifan Nie and Zhang Xiong
- P371 An overview on the Gaussian Fields and Harmonic Functions Method for Semi-supervised Learning [#15308]
Celso Sousa
- P372 Evolutionary Adaptive Self-Generating Prototypes for Imbalanced Datasets [#15611]
Dayvid Oliveira, George Cavalcanti, Tsang Ren and Ricardo Silva
- P373 A simulator for Freeman K-sets in Java [#15281]
Denis Piazzentin and Joao Luis Rosa
- P374 Reconstructing fMRI BOLD signals arising from Cerebellar Granule Neurons - Comparing GLM and Balloon Models [#15524]
Chaitanya Medini, Bipin Nair, Giovanni Naldi, Egidio D'Angelo and Shyam Diwakar
- P375 EEG Source Localization by Memory Network Analysis of Subjects Engaged in Perceiving Emotions from Facial Expressions [#15615]
Reshma Kar, Amit Konar, Aruna Chakraborty, Basabdatta Sen Bhattacharya and Atulya Nagar
- P376 Forecasting Model for Bidding Behavior of Advertisers Based on HMM [#15140]
Long Lili, Dong Hongbin, Pan Yue, Huangfu Li, Gou Naikang and Wang Xingmei
- P377 Self-organization of Hippocampal Representations in Large Environments [#15821]
Shuang Liu, Bailu Si and Yang Lin
- P378 ANSWER: An Unsupervised Attractor Network Method for Detecting Salient Words in Text Corpora [#15704]
Madhavun Candadai, Aashay Vanarase, Mei Mei and Ali Minai
- P379 ASD Detection in Males Using MRI- An Age-group Based Study [#15377]
Vigneshwaran Subbaraju, Suresh Sundaram, Mahanand Belathur Suresh and Sundararajan Narasimhan
- P380 Si elegans: Hardware Architecture and Communications Protocol [#15701]
Pedro Machado, Appiah Kofi, Martin McGinnity, John Wade and Martin McGinnity
- P381 A Novel Hardware-Efficient Cochlea Model based on Asynchronous Cellular Automaton [#15745]
Masato Izawa and Hiroyuki Torikai
- P382 HMAX Model: A Survey [#15576]
Chang Liu and Fuchun Sun
- P383 Composer Classification based on Temporal Coding in Adaptive Spiking Neural Networks [#15765]
Chaitanya Prasad Narisetty, Krishnakant Saboo and Bipin Rajendran
- P384 Clustering-based gene-subnetwork biomarker identification using gene expression data [#15721]
Narumol Doungpan, Worrawat Engchuan, Asawin Meechai and Jonathan Chan
- P385 An HMM-based Gait Comparison on Inertial Sensors: Using Alzheimer's Disease Patients as Examples [#15735]
Wei-Hsin Wang, Hao-Li Wu, Pau-Choo Chung and Ming-Chyi Pai

P386 Short Answer Question Examination using an Automatic Off-line Handwriting Recognition System and a Novel Combined Feature [#15378]

Hemmaphan Suwanwiwat, Umapada Pal and Michael Blumenstein

P387 Recognizing Visual Composite in Real Images [#15361]

Lin Bai, Kan Li and Shuai Jiang

P388 Modelling of a retinal ganglion cell with simple spiking models [#15686]

Philip Vance, Sonya Coleman, Dermot Kerr, Gautham Das and Martin McGinnity

P389 Bag-of-Visual Words for Word-Wise Video Script Identification: A Study [#15511]

Nabin Sharma, Ranju Mandal, Rabi Sharma, Umapada Pal and Michael Blumenstein

P390 An Online Incremental Learning Algorithm For Time Series [#15799]

Haoran Xu, Youlu Xing, Furao Shen and Jinxi Zhao

P391 The Impact of Longstanding Messages in Micro-Blogging Classification [#15650]

Joana Costa, Catarina Silva, Mario Antunes and Bernardete Ribeiro

P392 Interval-valued Symbolic Representation based Method for Off-line Signature Verification [#15354]

Srikanta Pal, Alireza Alaei, Umapada Pal and Michael Blumenstein

P393 Improving Deep Neural Networks Using Softplus Units [#15271]

Hao Zheng, Zhanlei Yang, Jizhong Liang, Yanpeng Li and Wenju Liu

P394 Restoring High Frequency Spectral Envelopes Using Neural Networks for Speech Bandwidth Extension [#15300]

Yu Gu and Zhen-Hua Ling

P395 Indoor Localization by Denoising Autoencoders and Semi-supervised Learning in 3D Simulated Environment [#15629]

Amirhossein Shantia, Rik Timmers, Lambert Schomaker and Marco Wiering

P396 Event-Triggered Adaptive Dynamic Programming for Continuous-time Nonlinear System Using Measured Input-Output Data [#15287]

Xiangnan Zhong, Zhen Ni and Haibo He

P397 Efficient Use of Nadaraya-Watson Models and Low-discrepancy Sequences for Approximate Dynamic Programming [#15399]

Cristiano Cervellera, Mauro Gaggero, Danilo Maccio and Roberto Marcialis

P398 Neurocontrol of Single Shaft Heavy duty Gas Turbine Using Adaptive Dynamic Programming [#15550]

Yuzhu Huang and Hongde Jiang

P399 Music Genre Classification with Self-Organizing Maps and Edit Distance [#15409]

Razvan Popovici and Razvan Andonie

P400 Combining PCA and Multiset CCA for Dimension Reduction when Group ICA is Applied to Decompose Naturalistic fMRI Data [#15636]

Valeri Tsatsishvili, Fengyu Cong, Petri Toivainen and Tapani Ristaniemi

P401 Scalable Real-time Parking Lot Classification: An Evaluation of Image Features and Supervised Learning Algorithms [#15050]

Marc Tschentscher, Christian Koch, Markus Koenig, Jan Salmen and Marc Schlipfing

P402 Automatic Classification of Drum Sounds with Indefinite Pitch [#15089]

Vinicius Souza, Gustavo Batista and Nilson Souza-Filho

P403 Compressed representation learning for fluid field reconstruction from sparse sensor observations [#15355]

Hongming Zhou, Yeng Chai Soh, Chaoyang Jiang and Xiaoying Wu

P404 An Echo State Network Approach to Structural Health Monitoring [#15505]

Adam Wootton, Charles Day and Peter Haycock

P405 Realistic and Very Fast Simulation of Individual Electricity Consumptions [#15082]

Alexis Bondu and Asma Dachraoui

P406 Echo state networks, artificial neural networks and fuzzy systems models for improve short-term wind speed forecasting [#15589]

Ronaldo Aquino, Ramon Souza, Otoni Nobrega Neto, Milde Lira, Manoel Carvalho and Aida Ferreira

P407 Prediction Interval Estimation for Wind Farm Power Generation Forecasts Using Support Vector Machines [#15563]

Nitin Anand Shrivastava, Abbas Khosravi and Bijaya Ketan Panigrahi

P408 Network-Traffic Anomaly Detection with Incremental Majority Learning [#15428]

Huang Shin-Ying, Yu Fang, Tsaih Rua-Huan and Huang Yennun

P409 Probabilistic Temporal Bilinear Model for Temporal Dynamic Recommender Systems [#15487]

Cheng Luo, Xiongcai Cai and Nipa Chowdhury

P410 A Word Distributed Representation Based Framework for Large-scale Short Text Classification [#15343]

Di Yao, Jingping Bi, Jianhui Huang and Zhu Jin

Wednesday, July 15, 2015

Plenary Talk Plenary4: Plenary session: Barak Pearlmutter

Wednesday, July 15, 8:00AM-9:00AM, Room: Auditorium, Chair: Huang, De-Shuang

Session Struct: Structures and hierarchies

Wednesday, July 15, 9:10AM-10:30AM, Room: Auditorium, Chair: Koprinkova-Hristova, Petia

9:10AM Evolving Artificial Neural Networks through L-System and Evolutionary Computation [#15375]

Lidio Mauro Lima De Campos, Roberto Celio Limao De Oliveira and Mauro Roisenberg

9:30AM On effects of IP improvement of ESN reservoirs for reflecting of data structure [#15613]

Petia Koprinkova-Hristova

9:50AM Order-aware exemplars for structuring video sets: Clustering, aligned matching and retrieval by similarity [#15223]

Yasuo Matsuyama, Akihiro Shikano, Hiromichi Iwase and Teruki Horie

10:10AM Improvement of Reliabilities of Regulations using a Hierarchical Structure in a Genetic Network [#15125]

Shuhei Kimura and Mariko Okada-Hatakeyama

Special Session ss33: Intelligent Vehicle Systems

Wednesday, July 15, 9:10AM-10:30AM, Room: Ballroom, Chair: Murphy, Yi

9:10AM Approaching Real-World Navigation Using Object Recognition Network [#15643]

Zeja Zheng and Weng Juyang

9:30AM Driver Yawning Detection based on Deep Convolutional Neural Learning and Robust Nose Tracking [#15420]

Weiwei Zhang, Yi Murphey, Tianyu Wang and Qijie Xu

9:50AM Extending Traffic Light Recognition: Efficient Classification of Phase and Pictogram [#15326]

Matthias Michael and Marc Schlipfing

10:10AM Maneuver Segmentation for Autonomous Parking Based on Ensemble Learning [#15389]

Gennaro Notomista and Michael Botsch

Session Spiking1: Spiking neural networks 1

Wednesday, July 15, 9:10AM-10:30AM, Room: Brehon, Chair: Dora, Shirin

9:10AM Limits of Coincidence Detector Neurons as Decoders of Polychronous Neuronal Groups Firing Completely [#15427]

Joao Paulo Cerquinho Cajueiro and Joao Ranhel

9:30AM NormAD - Normalized Approximate Descent based Supervised Learning Rule for Spiking Neurons [#15488]

Navin Anwani and Bipin Rajendran

9:50AM CARLsim 3: A User-Friendly and Highly Optimized Library for the Creation of Neurobiologically Detailed Spiking Neural Networks [#15225]

Michael Beyeler, Kristofor Carlson, Ting-Shuo Chou, Nikil Dutt and Jeffrey Krichmar

10:10AM A Two Stage Learning Algorithm for a Growing-Pruning Spiking Neural Network for Pattern Classification Problems [#15454]

Shirin Dora, Sundaram Suresh and Narasimhan Sundararajan

Session Robot1: Robotics 1: Spatial Cognition and Navigation

Wednesday, July 15, 9:10AM-10:30AM, Room: Park Suite, Chair: Jung, Seul

9:10AM A Spatial Cognition Model Integrating Grid Cells and Place Cells [#15407]

Gonzalo Tejera, Martin Llofriu, Alejandra Barrera and Alfredo Weitzenfeld

9:30AM Applying the Canonical Distributed Embodied Evolution Algorithm in a Collective Indoor Navigation Task [#15748]

Pedro Trueba, Abraham Prieto, Francisco Bellas and Duro Richard

9:50AM A Boundedness Theoretical Analysis for GrADP Design: A Case Study on Maze Navigation [#15291]

Zhen Ni, Xiangnan Zhong and Haibo He

10:10AM Neural Network Control for Balancing Performance of a Single-wheel Transportation Vehicle [#15269]

Min S. Ha and Seul Jung

Session HW1: Hardware 1

Wednesday, July 15, 9:10AM-10:30AM, Room: Mangerton, Chair: Suri, Manan

9:10AM A Divide-and-Conquer Strategie for FPGA Implementations of Large MLP-based Classifiers [#15392]

Javier Echanobe, Raul Finker and Ines del Campo

9:30AM Noise-Robust Hardware Implementation of Neural Networks [#15497]

Vincent Canals, Miquel L. Alomar, Antoni Morro, Antoni Oliver and Josep L. Rossello

9:50AM Training neural hardware with noisy components [#15702]

Fred Rothganger, Brian Evans, James Aimone and Erik DeBenedictis

10:10AM OXRAM Based ELM Architecture for Multi-Class Classification Applications [#15469]

Manan Suri, Vivek Parmar, Gilbert Sassine and Fabien Alibart

Panel Session Invited3: Invited Speaker: Cesare Alippi

Wednesday, July 15, 10:50AM-11:30AM, Room: Auditorium, Chair: Huang, De-Shuang

Special Session ss12-1: Concept Drift, Domain Adaptation and Learning in Dynamic Environments 1

Wednesday, July 15, 10:50AM-12:10PM, Room: Ballroom, Chair: Boracchi, Giacomo

10:50AM Credit Card Fraud Detection and Concept-Drift Adaptation with Delayed Supervised Information [#15365]

Andrea Dal Pozzolo, Giacomo Boracchi, Olivier Caelen, Cesare Alippi and Gianluca Bontempi

11:10AM On Sequences of Different Adaptive Mechanisms in Non-Stationary Regression Problems [#15713]

Rashid Bakirov, Bogdan Gabrys and Damien Fay

11:30AM Detecting Anomalous Structures by Convolutional Sparse Models [#15726]

Diego Carrera, Giacomo Boracchi, Alessandro Foi and Brendt Wohlberg

11:50AM Quantifying the Limited and Gradual Concept Drift Assumption [#15826]

Joseph Sarnelle, Anthony Sanchez, Robert Capo, Joshua Haas and Robi Polikar

Session Spiking2: Spiking neural networks 2

Wednesday, July 15, 10:50AM-12:10PM, Room: Brehon, Chair: Marsland, John

10:50AM Multi-DL-ReSuMe: Multiple neurons Delay Learning Remote Supervised Method [#15665]

Aboozar Taherkhani, Ammar Belatreche, Yuhua Li and Liam P. Maguire

11:10AM Supervised learning in Spiking Neural Networks with Limited Precision: SNN/LP [#15651]

Evangelos Stomatias and John Marsland

11:30AM Fast-Classifying, High-Accuracy Spiking Deep Networks Through Weight and Threshold Balancing [#15603]

Peter U. Diehl, Daniel Neil, Jonathan Binas, Matthew Cook, Shih-Chii Liu and Michael Pfeiffer

11:50AM Dynamically Evolving Spiking Neural Network for Pattern Recognition [#15538]

Jinling Wang, Ammar Belatreche, Liam Maguire and Martin McGinnity

Session Robot2: Robotics 2: Sensory and motor processing

Wednesday, July 15, 10:50AM-12:10PM, Room: Park Suite, Chair: Zhang, LI

10:50AM Estimating Multimodal Attributes for Unknown Objects [#15743]

Daiki Kimura and Osamu Hasegawa

11:10AM Intelligent Facial Expression Recognition with Adaptive Feature Extraction for a Humanoid Robot [#15057]

Kamlesh Mistry, Li Zhang and John Barnden

11:30AM EMG based elbow joint powered exoskeleton for biceps brachii strength augmentation [#15530]

Vladimir Krasim, Gandhi Vaibhav, Yang Zhijun and Karamanoglu Mehmet

11:50AM Population based Mean of Multiple Computations Networks: A Building Block for Kinematic Models [#15727]

Manuel Baum, Martin Meier and Malte Schilling

Session HW2: Hardware 2

Wednesday, July 15, 10:50AM-12:10PM, Room: Mangerton, Chair: Rothganger, Fred

10:50AM Memristor Based Neuromorphic Circuit for Ex-Situ Training of Multi-Layer Neural Network Algorithms [#15761]

Chris Yakopcic, Raqibul Hasan and Tarek Taha

11:10AM Efficient Training Algorithms for Neural Networks Based on Memristive Crossbar Circuits [#15720]

Irina Kataeva, Farnood Merrikh-Bayat, Elham Zamanidoost and Dmitri Strukov

11:30AM Design of analog subthreshold encoded neural network circuit in sub-100nm CMOS [#15567]

Benoit Larras, Cyril Lahuec, Fabrice Seguin and Matthieu Arzel

11:50AM A Fully Integrated Analog Neuron for Dynamic Multi-layer Perceptron Networks [#15256]

Melin Ngwar and Jim Wight

Session ML1: Machine learning 1

Wednesday, July 15, 11:30AM-12:10PM, Room: Auditorium, Chair: Hakawa, Hiroomi

11:30AM An Autonomous Competitive Learning Algorithm using Quantum Hamming Neural Networks [#15633]

Mohammed Zidan, Alaa Sagheer and Nasser Metwally

11:50AM Vector Classification by a Winner-Take-All Neural Network with Digital Frequency-Locked Loop [#15436]

Hiroomi Hikawa

Plenary Talk Plenary5: Plenary session: Steve Furber

Wednesday, July 15, 1:10PM-2:10PM, Room: Auditorium, Chair: Erdi, Peter

Session ML2: Machine learning 2

Wednesday, July 15, 2:20PM-4:00PM, Room: Auditorium, Chair: Anguita, Davide

2:20PM Stationarity of Matrix Relevance LVQ [#15248]

Michael Biehl, Barbara Hammer, Frank-Michael Schleif, Petra Schneider and Thomas Villmann

2:40PM Reduction of Catastrophic Forgetting With Transfer Learning and Ternary Output Codes [#15214]

Steven Gutstein and Ethan Stump

3:00PM Efficient Representation Ranking for Transfer Learning [#15262]

Son Tran and Artur Garcez

3:20PM Function approximation for large markov decision processes using self-organizing neural networks [#15475]

Teck-Hou Teng

3:40PM The on-line Curvilinear Component Analysis (onCCA) for Real-Time Data Reduction [#15049]

Giansalvo Cirrincione, Jeanny Herault and Vincenzo Randazzo

Special Session ss12-2: Concept Drift, Domain Adaptation and Learning in Dynamic Environments 2

Wednesday, July 15, 2:20PM-4:00PM, Room: Ballroom, Chair: Alippi, Cesare

2:20PM Use of Ensembles of Fourier Spectra in Capturing Recurrent Concepts in Data Streams [#15438]

Sakthithasan Sripirakas, Russel Pears, Albert Bifet and Bernhard Pfahringer

2:40PM A2D2: A Pre-event Abrupt Drift Detection [#15777]

Tatiana Escovedo, Adriano Koshiyama, Marley Vellasco, Andre Abs da Cruz and Rubens Melo

3:00PM An Approach to Handle Concept Drift in Financial Time Series Based on Extreme Learning Machines and Explicit Drift Detection [#15635]

Rodolfo Carneiro Cavalcante and Adriano Lorena Inacio de Oliveira

3:20PM Repeated Play of the SVM Game as a Means of Adaptive Classification [#15646]

Craig Vineyard, Stephen Verzi, Conrad James, James Aimone and Gregory Heileman

3:40PM Combining Offline and Online Classifiers for Life-long Learning [#15577]

Lydia Fischer, Barbara Hammer and Heiko Wersing

Special Session ss01-1: Computational Intelligence applied to Vision and Robotics (CIVR) 1

Wednesday, July 15, 2:20PM-4:00PM, Room: Brehon, Chair: Garcia-Rodriguez, Jose

2:20PM Using GNG on 3D Object Recognition in Noisy RGB-D data [#15110]

Jose Carlos Rangel, Vicente Morell, Miguel Cazorla, Sergio Orts-Escolano and Jose Garcia-Rodriguez

2:40PM Evaluation of Multi Feature Fusion at Score-Level for Appearance-based Person Re-Identification [#15122]

Markus Eisenbach, Alexander Kolarow, Alexander Vorndran, Julia Niebling and Horst-Michael Gross

3:00PM ECAS-II: A Hybrid Algorithm for the Construction of Multidimensional Image Segmenters [#15286]

Blanca Priego, Francisco Bellas and Richard Duro

3:20PM Gesture based Human Multi-Robot Interaction [#15381]

Gerard Canal, Cecilio Angulo and Sergio Escalera

3:40PM ChaLearn Looking at People 2015 new competitions: Age Estimation and Cultural Event Recognition [#15482]

Escalera Sergio, Gonzalez Jordi, Baro Xavier, Pardo Pablo, Fabian Junior, Oliu Marc, Escalante Hugo, Huerta Ivan and Guyon Isabelle

Session RL1: Reinforcement learning 1

Wednesday, July 15, 2:20PM-4:00PM, Room: Park Suite, Chair: Anderson, Charles

2:20PM Following Newton Direction in Policy Gradient with Parameter Exploration [#15568]

Giorgio Manganini, Matteo Pirota, Marcello Restelli and Luca Bascetta

2:40PM Faster Reinforcement Learning After Pretraining Deep Networks to Predict State Dynamics [#15781]

Charles Anderson, Minwoo Lee and Daniel Elliott

3:00PM A Comparative Study between Motivated Learning and Reinforcement Learning [#15640]

James Graham, Janusz Starzyk, Zhen Ni, Haibo He, Teck-Hou Teng and Ah-Hwee Tan

3:20PM Continuous-time on-policy neural reinforcement learning of working memory tasks [#15520]

Davide Zambrano, Roelfsema Pieter and Bohte Sander

3:40PM Online Reinforcement Learning by Bayesian Inference [#15242]

Zhongpu Xia and Dongbin Zhao

Session HW3: Hardware 3

Wednesday, July 15, 2:20PM-4:00PM, Room: Mangerton, Chair: Roy, Kaushik

2:20PM An efficient SpiNNaker implementation of the Neural Engineering Framework [#15170]

Andrew Mundy, James Knight, Terrence Stewart and Steve Furber

2:40PM Scalable Energy-Efficient, Low-Latency Implementations of Trained Spiking Deep Belief Networks on SpiNNaker [#15502]

Evangelos Stomatias, Daniel Neil, Francesco Galluppi, Michael Pfeiffer, Shih-Chii Liu and Steve Furber

3:00PM Spin-Transfer Torque Magnetic Neuron for Low Power Neuromorphic Computing [#15022]

Abhronil Sengupta and Kaushik Roy

3:20PM Neuron-like Digital Hardware Architecture for Large-scale Neuromorphic Computing [#15641]

Byungik Ahn

3:40PM A neuromorphic hardware framework based on population coding [#15453]

Chetan Singh Thakur, Tara Julia Hamilton, Runchun Wang, Jonathan Tapson and Andre van Schaik

Session ML3: Machine learning 3

Wednesday, July 15, 4:20PM-6:00PM, Room: Innisfallen, Chair: Comminiello, Danilo

4:20PM Link prediction in graph construction for supervised and semi-supervised learning [#15384]

Lilian Berton, Jorge Valverde-Rebaza and Alneu de Andrade Lopes

4:40PM Discriminative Concept Learning Network: Reveal High-level Differential Concepts from Shallow Architecture [#15363]

Qiao Wang, Sylvia Young, Aaron Harwood and Cheng Soon Ong

5:00PM Stochastic Discriminant Analysis [#15477]

Mika Juuti, Francesco Corona and Juha Karhunen

5:20PM Improved Error Bounds Based on Worst Likely Assignments [#15676]

Eric Bax

5:40PM Learning the Hash Code with Generalised Regression Neural Networks for Handwritten Signature Biometric Data Retrieval [#15617]

Bernardete Ribeiro, Noel Lopes and Catarina Silva

Special Session ss12-3: Concept Drift, Domain Adaptation and Learning in Dynamic Environments 3

Wednesday, July 15, 4:20PM-6:00PM, Room: Ballroom, Chair: Lemaire, Vincent

4:20PM Monitoring Term Drift Based on Semantic Consistency in an Evolving Vector Field [#15693]

Peter Wittek, Sandor Daranyi, Efstratios Kontopoulos, Theodoros Moysiadis and Ioannis Kompatsiaris

4:40PM Concept Drift Detection using Supervised Bivariate Grids [#15273]

Christophe Salperwyck, Marc Boulle and Vincent Lemaire

5:00PM Comparison Between Inverse Modelling and Data Assimilation to Estimate Rainfall from Runoff Using the Multilayer Perceptron [#15228]

Anne Johannet, Virgile Taver, Valerie Borrell Estupina, Marc Vinches, Severin Pistre and Dominique Bertin

5:20PM Feature Ranking in Changing Environments where New Features are Introduced [#15373]

Alexandra Degeest, Michel Verleysen and Benoit Frenay

5:40PM Concept Drift Detection for Streaming Data [#15186]

Zubin Abraham and Heng Wang

Special Session ss01-2: Computational Intelligence applied to Vision and Robotics (CIVR) 2

Wednesday, July 15, 4:20PM-6:00PM, Room: Brehon, Chair: Azorin-Lopez, Jorge

4:20PM Processing Point Cloud Sequences with Growing Neural Gas [#15620]

Sergio Orts-Escolano, Jose Garcia-Rodriguez, Vicente Morell, Miguel Cazorla, Marcelo Saval-Calvo and Jorge Azorin

4:40PM Non-rigid point set registration using color and data downsampling [#15692]

Marcelo Saval-Calvo, Sergio Orts-Escolano, Jorge Azorin-Lopez, Jose Garcia-Rodriguez, Andres Fuster-Guillo, Vicente Morell-Gimenez and Miguel Cazorla

5:00PM Self-Organizing Activity Description Map to Represent and Classify Human Behaviour [#15718]

Jorge Azorin-Lopez, Marcelo Saval-Calvo, Andres Fuster-Guillo, Jose Garcia-Rodriguez and Sergio Orts-Escolano

5:20PM Enhanced Image Classification With a Fast-Learning Shallow Convolutional Neural Network [#15736]

Mark McDonnell and Tony Vladusich

5:40PM Improving Bag of Visual Words Representations with Genetic Programming [#15739]

Hugo Jair Escalante, Jose Martinez, Sergio Escalera, Victor Ponce and Xavier Baro

Session RL2: Reinforcement learning 2

Wednesday, July 15, 4:20PM-6:00PM, Room: Park Suite, Chair: Potter, Steve

4:20PM Learning Eye Movements Strategies on Tiled Large High-Resolution Displays using Inverse Reinforcement Learning [#15571]

Redwan Abdo A. Mohammed and Oliver Staadt

4:40PM Interactive Reinforcement Learning through Speech Guidance in a Domestic Scenario [#15293]

Francisco Cruz, Johannes Twiefel, Sven Magg, Cornelius Weber and Stefan Wermter

5:00PM Approximate Policy Iteration with Unsupervised Feature Learning based on Manifold Regularization [#15034]

Hongliang Li, Derong Liu and Ding Wang

5:20PM A Spiking Neuronal Model Learning a Motor Control Task by Reinforcement Learning and Structural Synaptic Plasticity [#15358]

Spueler Martin, Nagel Sebastian and Rosenstiel Wolfgang

5:40PM Adaptive-Critic-Based Control of a Synchronous Generator in a Power System Using Biologically Inspired Artificial Neural Networks [#15634]

Jing Dai, Ganesh K. Venayagamoorthy, Ronald G. Harley, Yi Deng and Steve M. Potter

Session Noise: Anomaly and noise

Wednesday, July 15, 4:20PM-6:00PM, Room: Mangerton, Chair: Angelov, Plamen

4:20PM Expected Similarity Estimation for Large Scale Anomaly Detection [#15066]

Markus Schneider, Wolfgang Ertel and Guenther Palm

4:40PM Self-structured Confabulation Network for Fast Anomaly Detection and Reasoning [#15135]

Qiuwen Chen, Qing Wu, Morgan Bishop, Richard Linderman and Qinru Qiu

5:00PM The Adaptable Buffer Algorithm for High Quantile Estimation in Non-Stationary Data Streams [#15041]

Ognjen Arandjelovic, Pham Duc-Son and Venkatesh Svetha

5:20PM PCAGA: Principal Component Analysis Based Genetic Algorithm for Solving Conditional Nonlinear Optimal Perturbation [#15360]

Bin Mu, Linlin Zhang, Shijin Yuan and Hongyu Li

5:40PM Online Fault Detection Based on Typicality and Eccentricity Data Analytics [#15626]

Bruno Costa, Clauber Bezerra, Luiz Affonso Guedes and Plamen Angelov

Thursday, July 16, 2015

Plenary Talk Plenary6: Plenary session: Lee Giles

Thursday, July 16, 8:00AM-9:00AM, Room: Auditorium, Chair: Minai, Ali

Special Session ss16-1: Computational Intelligence Algorithms for Digital Audio Applications 1

Thursday, July 16, 9:10AM-10:30AM, Room: Auditorium, Chair: Squartini, Stefano

9:10AM Non-Linear Prediction with LSTM Recurrent Neural Networks for Acoustic Novelty Detection [#15683]

Erik Marchi, Fabio Vesperini, Felix Wening, Florian Eyben, Stefano Squartini and Bjoern Schuller

9:30AM Polyphonic Sound Event Detection Using Multi Label Deep Neural Networks [#15500]

Emre Cakir, Toni Heittola, Heikki Huttunen and Tuomas Virtanen

9:50AM An Interactive Optimization Procedure for Stereophonic Acoustic Echo Cancellation Systems [#15252]

Laura Romoli, Stefania Cecchi, Francesco Piazza, Danilo Comminiello, Michele Scarpiniti and Aurelio Uncini

10:10AM Functional Link Expansions for Nonlinear Modeling of Audio and Speech Signals [#15251]

Danilo Comminiello, Simone Scardapane, Michele Scarpiniti, Raffaele Parisi and Aurelio Uncini

Session ML4: Machine learning 4

Thursday, July 16, 9:10AM-10:30AM, Room: Ballroom, Chair: Bertini, Joao

9:10AM Refining Constructive Neural Networks Using Functionally Expanded Input Data [#15299]

Joao Bertini and Maria Nicoletti

9:30AM Exponential C-loss for Data Fitting [#15618]

Badong Chen, Ren Wang, Nanning Zheng and Jose Principe

9:50AM Kolmogorov Complexity Vector: A Novel Data Representation [#15394]

Ge Yang and Ali Ghodsi

10:10AM A Sample Partition Method for Learning to Rank Based on Query-level Vector Extraction [#15368]

Jungang Xu, Shilong Zhou, Hong Chen and Pengfei Li

Session Spiking3: Spiking neural networks 3

Thursday, July 16, 9:10AM-10:30AM, Room: Brehon, Chair: TBA

9:10AM Runtime Detection of Activated Polychronous Neuronal Group towards its Spatiotemporal Analysis [#15207]

Haoqi Sun, Yan Yang, Olga Sourina and Guang-Bin Huang

9:30AM Scale and Translation Invariant Learning of Spatio-Temporal Patterns using Longest Common Subsequences and Spiking Neural Networks [#15737]

Banafsheh Rekabdar, Monica Nicolescu, Mircea Nicolescu and Richard Kelley

9:50AM GPU-based Fast Parameter Optimization for Phenomenological Spiking Neural Models [#15561]

Zafeirios Fountas and Murray Shanahan

10:10AM Stochastic and Asynchronous Spiking Dynamic Neural Fields [#15709]

Benoit Chappet de Vangel, Cesar Torres-Huitzil and Bernard Girau

Session Cluster: Clustering

Thursday, July 16, 9:10AM-10:30AM, Room: Park Suite, Chair: Wunsch, Donald C.

9:10AM The Unbalancing Effect of Hubs on K-medoids Clustering in High-Dimensional Spaces [#15019]

Dominik Schnitzer and Arthur Flexer

9:30AM Spectral Clustering Using Robust Similarity Measure Based on Closeness of Shared Nearest Neighbors [#15316]

Xiucai Ye and Tetsuya Sakurai

9:50AM Multi-Prototype Local Density-based Hierarchical Clustering [#15747]

Leonardo Enzo Brito da Silva and Donald C. Wunsch II

10:10AM Impact of different Metrics on Multi-View Clustering [#15253]

Angela Serra, Dario Greco and Roberto Tagliaferri

Session BioPerc1: Biologically inspired perception 1

Thursday, July 16, 9:10AM-10:30AM, Room: Mangerton, Chair: Khan Iftekharuddin

9:10AM Modelling Retinal Ganglion Cells using Self-Organising Fuzzy Neural Networks [#15604]

Scott McDonald, Dermot Kerr, Sonya Coleman, Martin McGinnity and Philip Vance

9:30AM HEVS: A Hierarchical Computational Model for Early Stages of the Visual System [#15126]

Jiuqi Han, Qingqun Kong, Yi Zeng and Hongwei Hao

9:50AM Design of a Silicon Cochlea System with Biologically Faithful Response [#15787]

Shiwei Wang, Thomas Koickal, Godwin Enemali, Luiz Gouveia, Lei Wang and Alister Hamilton

10:10AM A Bio-Inspired Method for Object Representation [#15141]

Hui Wei

Special Session ss16-2/r: Computational Intelligence Algorithms for Digital Audio Applications 2 + Regular session on Image Analysis

Thursday, July 16, 10:50AM-12:10PM, Room: Auditorium, Chair: Squartini, Stefano; Mello, Carlos

10:50AM A Deep Neural Network Approach for Voice Activity Detection in Multi-Room Domestic Scenarios [#15340]

Giacomo Ferroni, Roberto Bonfigli, Emanuele Principi, Stefano Squartini and Francesco Piazza

11:10AM Data-driven vocal folds models for the representation of both acoustic and high speed video data [#15586]

Carlo Drioli and Gian Luca Foresti

11:30AM Text Segmentation in Ancient Topographic Maps and Floor Plans with Support Vector Data Description [#15331]

Saulo Machado and Carlos Mello

11:50AM One-shot Training of Polynomial Cellular Neural Networks and Applications in Image Processing. [#15133]

Antonio Arista-Jalife and Eduardo Gomez-Ramirez

Session Datamine: Data and text mining

Thursday, July 16, 10:50AM-12:10PM, Room: Ballroom, Chair: Schikuta, Erich

10:50AM Kernel Spectral Document Clustering Using Unsupervised Precision-Recall Metrics [#15543]

Raghvendra Mall and Johan Suykens

11:10AM Using Active Learning Techniques for Improving Database Schema Matching Methods [#15509]

Diego Rodrigues, Altigran Silva, Rosiane Rodrigues and Eulanda Santos

11:30AM Directed Generalized Measure of Association: A Data Driven Approach Towards Causal Inference [#15762]

Mehrnaz Khodam Hazrati, Andreas Keil and Jose C. Principe

11:50AM Semantic Extensions to the Vienna Neural Network Specification Language [#15560]

Erich Schikuta, Altaf Huqqani and Thomas Kopicca

Session Image: Image analysis

Thursday, July 16, 10:50AM-12:10PM, Room: Brehon, Chair: Lin, Feng

10:50AM Multi-Scale Local Shape Analysis and Feature Selection in Machine Learning Applications [#15229]

Paul Bendich, Ellen Gasparovic, John Harer, Rauf Izmailov and Linda Ness

11:10AM Pixel Characteristics based Feature Extraction Approach for Roadside Object Detection [#15463]

Sujan Chowdhury, Brijesh Verma, Mary Tom and Mengjie Zhang

11:30AM Dual Spatial Pyramid On Rotation Invariant Texture Feature For HEp-2 Cell Classification [#15137]

Xiang Xu, Feng Lin, Carol Ng and Khai pang Leong

11:50AM Factor Graphs for Pixelwise Illuminant Estimation [#15759]

Lawrence Mutumbu and Antonio Robles-Kelly

Session Local : Local learning

Thursday, July 16, 10:50AM-12:10PM, Room: Park Suite, Chair: Zhang, Haijun

10:50AM Self-Organizing Map-based Probabilistic Associative Memory for Sequential Patterns [#15527]

Niitsuma Jun and Osana Yuko

11:10AM Learning of local predictable representations in partially learnable environments [#15680]

Mathieu Lefort and Alexander Gepperth

11:30AM A Tree-Structured Representation for Book Author and Its Recommendation Using Multilayer SOM [#15369]

Lu Lu and Haijun Zhang

11:50AM An ART-like Algorithm for constructing RBF Neural Networks [#15305]

Xi Meng, Junfei Qiao and Honggui Han

Session BioPerc2: Biologically inspired perception 2

Thursday, July 16, 10:50AM-12:10PM, Room: Mangerton, Chair: Smith, Leslie

10:50AM C.elegans chemotaxis inspired neuromorphic circuit for contour tracking and obstacle avoidance [#15533]

Shibani Santurkar and Bipin Rajendran

11:10AM Gabor feature processing in spiking neural networks from retina-inspired data [#15108]

Aristeidis Tsitiridis, Cristina Conde, Isaac Martin de Diego, Jose Sanchez del Rio Saez, Jorge Raul Gomez and Enrique Cabello

11:30AM Novel Hierarchical Cellular Simultaneous Recurrent Neural Network for Object Detection [#15297]

Mahbubul Alam, Lasitha Vidyaratne and Khan Iftekharuddin

11:50AM A Biologically Inspired Onset and Offset Sound Segmentation Approach [#15097]

Andrew Abel, Dean Hunter and Leslie Smith

Workshop ws1: Workshop 1: The 2nd International Workshop on Advances in Learning from/with Multiple Learners (ALML 2015)

Thursday, July 16, 1:30PM-4:30PM, Room: Ballroom, Chair: Nistor Grozavu and Guenael Cabanes

1:30PM Uncorrelated Transferable Feature Extraction for Signal Classification in Brain-Computer Interfaces [#15819]

Honglei Shi, Jinhua Xu and Shiliang Sun

Workshop ws2: Workshop 2: The International Workshop on Spatial Representations in Biology and Robots

Thursday, July 16, 1:30PM-4:30PM, Room: Brehon, Chair: Jorg Conradt and Fred Hamker

Workshop ws3: Workshop 3: Computational Neurology and Psychiatry: Do we need it?

Thursday, July 16, 1:30PM-4:30PM, Room: Park Suite, Chair: Basabdatta Sen Bhattacharya and Peter Erdi

Workshop ws4: Workshop 4: BMI Workshop on Brain-Mind 1

Thursday, July 16, 1:30PM-4:30PM, Room: Mangerton, Chair: Leonid Perlovsky and Juyang (John) Weng

Friday, July 17, 2015

Workshop ws5-1: Workshop 5: The 2nd International Workshop on Computational Energy Management in Smart Grids (CEMiSG 2015) 1

Friday, July 17, 9:00AM-12:00PM, Room: Innisfallen, Chair: Stefano Squartini

9:00AM A Learning Intelligent System for Fault Detection in Smart Grid by a One-Class Classification Approach [#15682]

Enrico De Santis, Antonello Rizzi, Alireza Sadeghian and Frattale Mascioli Fabio Massimo

9:20AM Energy management with the support of dynamic pricing strategies in real micro-grid scenarios [#15493]

Marco Severini, Stefano Squartini, Marco Fagiani and Francesco Piazza

9:40AM Appliance Level Demand Modeling and Pricing Optimization for Demand Response Management in Smart Grid [#15233]

Fan-Lin Meng and Xiao-Jun Zeng

10:00AM Unit Commitment Considering Multiple Charging and Discharging Scenarios of Plug-in Electric Vehicles [#15254]

Zhile Yang, Kang Li, Qun Niu and Aoife Foley

10:20AM Methods for Clustering the Electrical Load in European Countries [#15064]

Ankit Kumar Tanwar, Emanuele Crisostomi, Pietro Ferraro, Giuseppe Giunta, Marco Raugi and Mauro Tucci

Workshop ws5-2: Workshop 5: The 2nd International Workshop on Computational Energy Management in Smart Grids (CEMiSG 2015) 2

Friday, July 17, 1:30PM-4:30PM, Room: Innisfallen , Chair: Stefano Squartini

1:30PM Thermal Comfort Control Based on MEC Algorithm for HVAC Systems [#15240]

Dong Li, Dongbin Zhao, Yuanheng Zhu and Zhongpu Xia

1:50PM Indoor thermal comfort control through fuzzy logic PMV optimization [#15607]

Lucio Ciabattoni, Gionata Cimini, Francesco Ferracuti, Massimo Grisostomi, Gianluca Ippoliti and Matteo Pirro

2:10PM A Non-Linear State Space Frequency Estimator for Three-Phase Power Systems [#15591]

Sayed Pouria Talebi, Sithan Kanna and Danilo Mandic

2:30PM A Novelty Detection approach to identify the occurrence of leakage in Smart Gas and Water Grids [#15289]

Marco Fagiani, Stefano Squartini, Marco Severini and Francesco Piazza

Workshop ws-canceled: Canceled Workshop: IJCNN 2015 Workshop on Automatic Machine Learning - AutoML

Friday, July 17, 1:30PM-4:30PM, Room:

1:30PM Design of the 2015 ChaLearn AutoML Challenge [#15695]

Isabelle Guyon, Kristin Bennett, Gavin Cawley, Hugo Jair Escalante, Sergio Escalera, Tin Kam Ho, Nuria Macia, Bisakha Ray, Alexander Statnikov, Evelyne Viegas and Merhreen Saeed

10 Author index

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- The index only includes authors of papers that appear in the proceedings.

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11 Errata

Errors that have been identified in the PDF papers are indicated below.

Paper ID:	Location	Original	Corrections/Additions
15335	Fig. 9 (a)–(c), x -axis label	b	β
15363	Acknowledgments		This work has received the Google Ph.D. travel prize from Google Australia.
15384	Equation 2	$s_{v_i, v_j}^c = \Gamma(v_i) \cap \Gamma(v_j) $	$s_{v_i, v_j}^c = \Gamma(v_i) \cap \Gamma(v_j) $
15833	Acknowledgments	National Science Foundation under grant #19200000000036	National Science Foundation under grant #1201790
15280	<p>Pg 5 (right col) Line 26 Pg 5 (right col) Line 27 Pg 5 (right col) Line 29 Pg 5 (right col) Line 30 Pg 5 (right col) Line 32</p> <p>Pg 5 (right col) Line 36 Pg 5 (right col) Line 37 Pg 5 (right col) Line 40 Pg 6 Tab. II row 11 col 6 Pg 6 Tab. II row 14 col 6 Pg 6 Tab. III row 11 col 6 Pg 6 Tab. III row 14 col 6 Pg 6 Tab. IV row 11 col 6 Pg 6 Tab. IV row 14 col 6 Pg 7 Tab. V row 11 col 6 Pg 7 Tab. V row 14 col 6 Pg 7 Tab. VI row 11 col 6 Pg 7 Tab. VI row 14 col 6 Pg 7 (left col) line 6</p>	<p>on ten datasets on two datasets on 11 datasets on the ALL dataset on 10 datasets, and NMFk-means and SRSC obtain the best RI on DL-BCL dataset and ALL dataset, respectively.</p> <p>2.10% 4.26%, 3.25% and 2.42% 4.40% 0.4324 0.7837 0.2117 0.5119 0.3951 0.7743 0.6477 0.7772 0.5802 0.4140 Besides the above four metrics</p>	<p>on nine datasets on three datasets on 10 datasets on the ALL and BrainTumor datasets on 9 datasets, and SRSC obtains the best RI on ALL and BrainTumor datasets.</p> <p>1.47% 3.73%, 2.54% and 2.22% 4.62% 0.5081 0.7900 0.2750 0.5172 0.4804 0.7814 0.6713 0.7792 0.6138 0.4168 Besides the above five metrics</p>

12 Venue Floor Plan

12.1 Killarney Convention Center Complex Overview



Brehon

INEC Auditorium

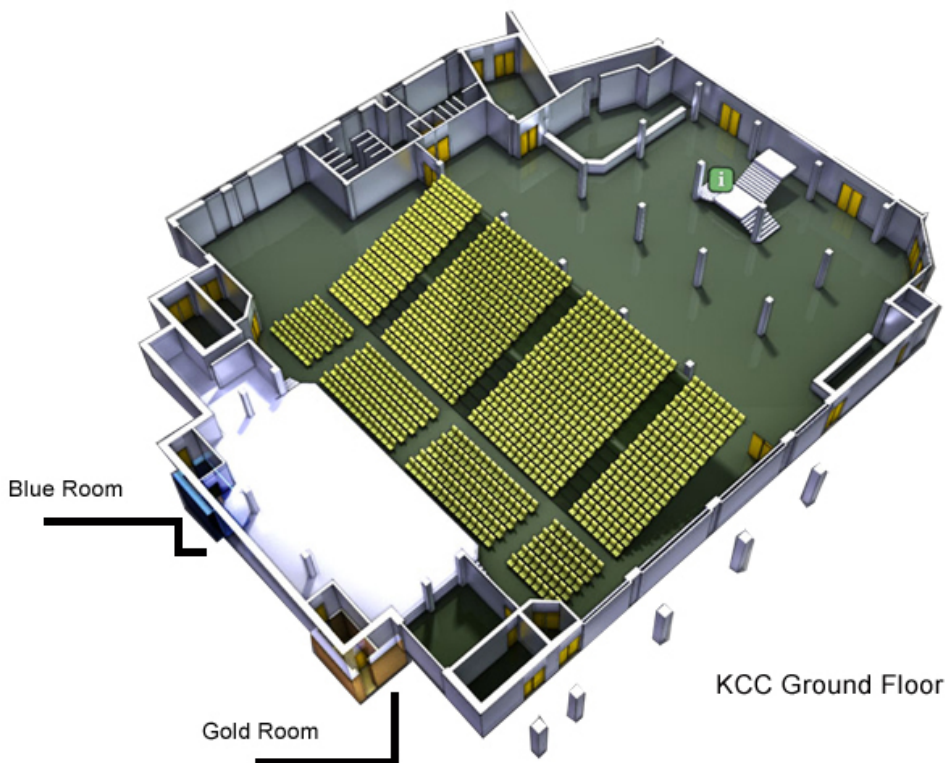
Ballroom

Park Suite

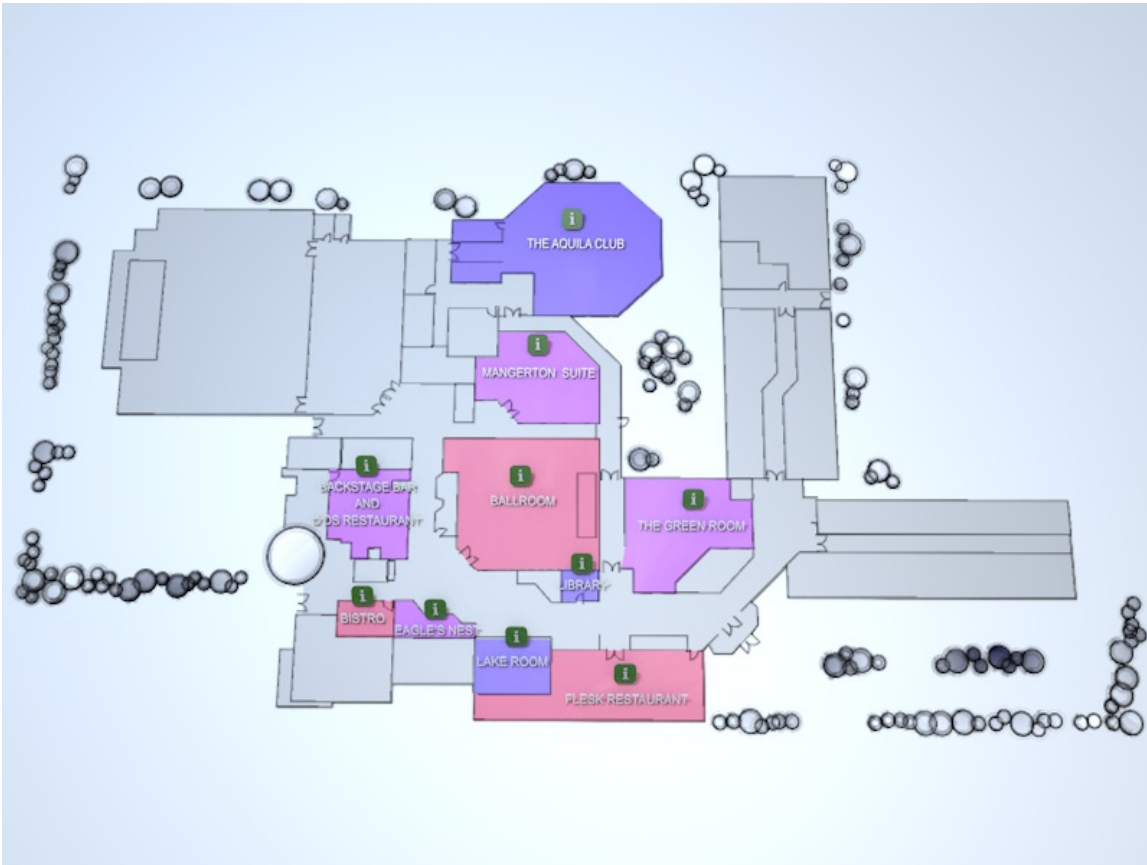
Mangerton

Torc/Ross/Innisfallen

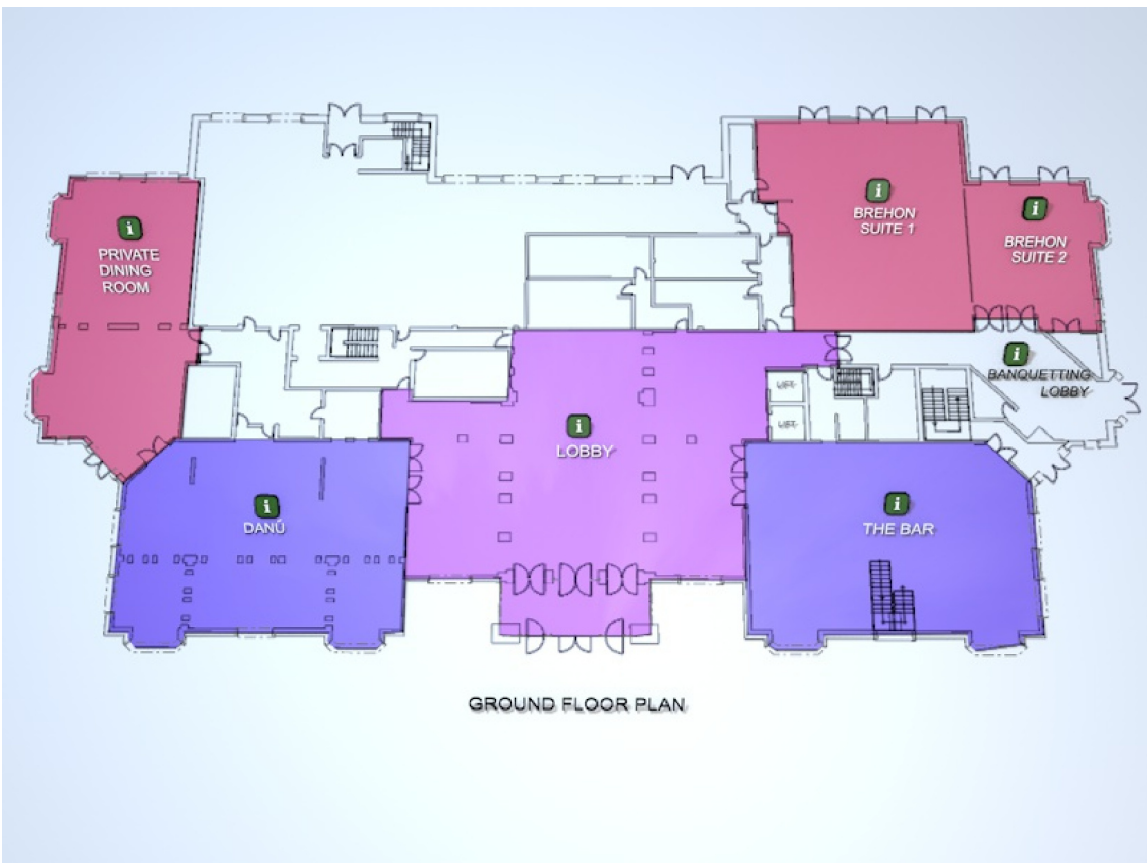
12.2 Auditorium: Convention Center Ground Floor



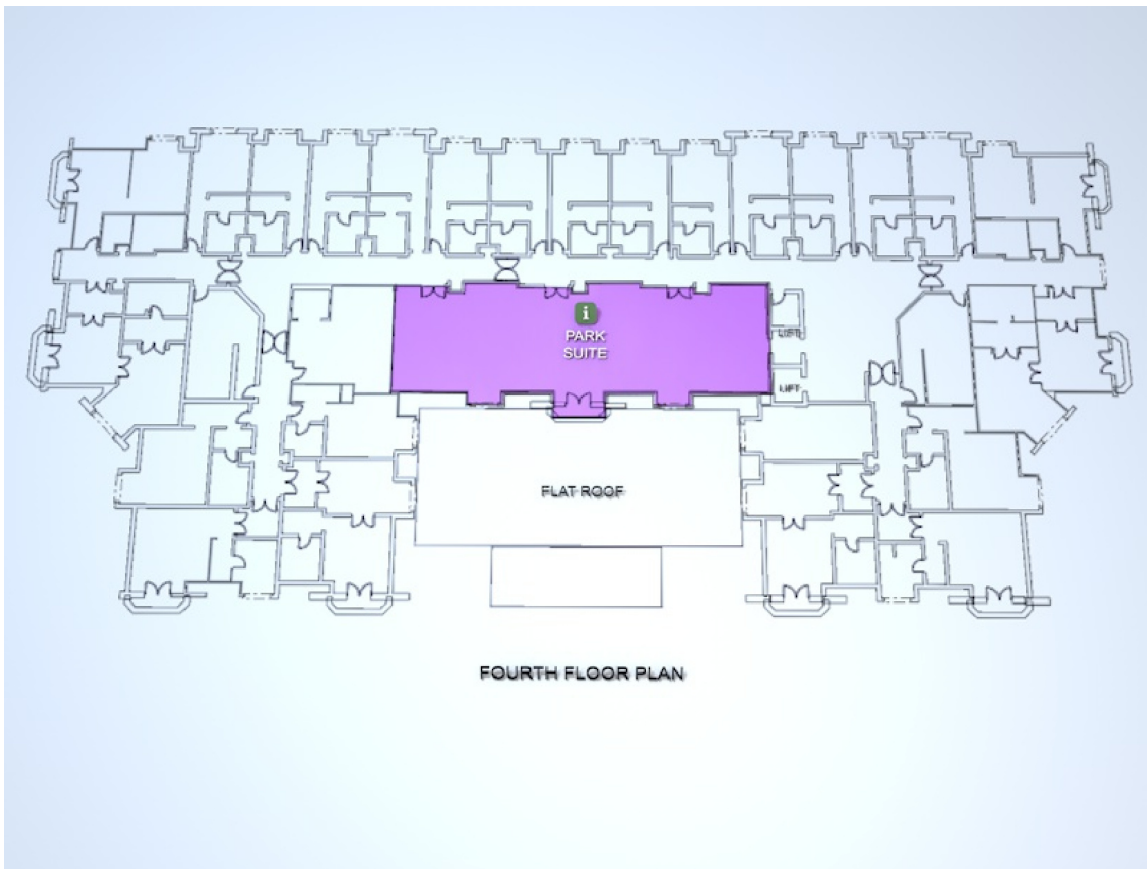
12.3 Ballroom: Gleneagle Ground Floor



12.4 Brehon: Brehon Hotel Ground Floor



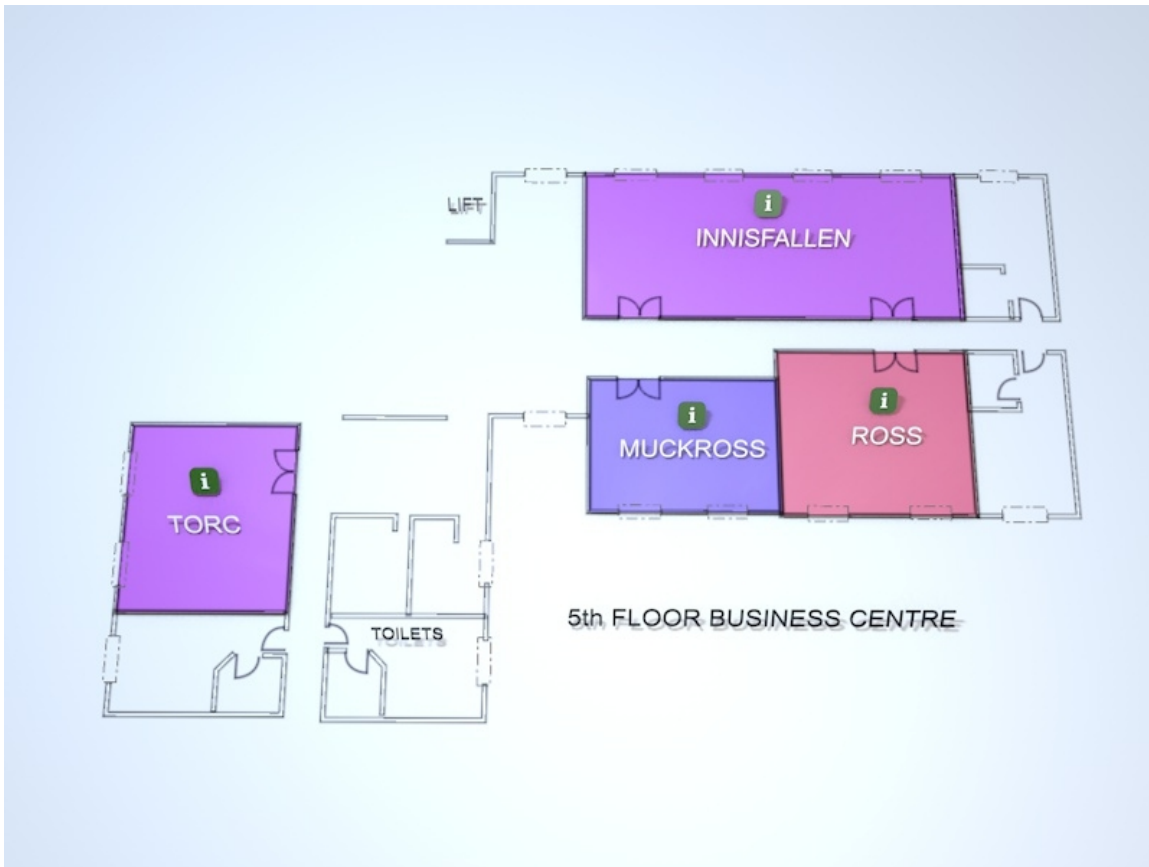
12.5 Park Suite: Brehon Hotel 4th Floor



12.6 Mangerton: Gleneagle Ground Floor



12.7 Torc, Ross, Innisfallen: Gleneagle 5th floor





IEEE WORLD CONGRESS ON COMPUTATIONAL INTELLIGENCE

25-29 JULY 2016, VANCOUVER, CANADA



The IEEE World Congress on Computational Intelligence (IEEE WCCI) is the largest technical event in the field of computational intelligence. The IEEE WCCI 2016 will host three conferences: The 2016 International Joint Conference on Neural Networks (IJCNN 2016), the 2016 IEEE International Conference on Fuzzy Systems (FUZZ-IEEE 2016), and the 2016 IEEE Congress on Evolutionary Computation (IEEE CEC 2016) under one roof. It encourages cross-fertilization of ideas among the three big areas and provides a forum for intellectuals from all over the world to discuss and present their research findings on computational intelligence.

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IJCNN is the flagship conference of the International Neural Network Society and the IEEE Computational Intelligence Society. It covers a wide range of topics in the field of neural networks, from biological neural network modeling to artificial neural computation.

FUZZ-IEEE is the foremost conference in the field of fuzzy systems. It covers all topics in fuzzy systems, from theory to applications.

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IEEE WCCI 2016 will feature pre-Congress tutorials, covering fundamental and advanced topics in computational intelligence. A tutorial proposal should include title, outline, expected enrollment, and presenter/organizer biography. Inquiries regarding tutorials should be addressed to Tutorials Chairs.

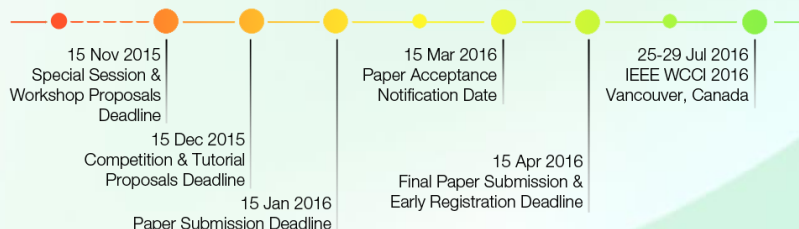
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IEEE WCCI 2016 solicits proposals for special sessions within the technical scope of the three conferences. Special sessions, to be organized by internationally recognized experts, aim to bring together researchers in special focused topics. Cross-fertilization of the three technical disciplines and newly emerging research areas are strongly encouraged. Inquiries regarding special sessions and proposals should be addressed to Special Sessions Chairs.

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