Lecture Notes in Computer Science 7553

Commenced Publication in 1973
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Artificial Neural Networks and Machine Learning – ICANN 2012

22nd International Conference
on Artificial Neural Networks
Lausanne, Switzerland, September 11-14, 2012
Proceedings, Part II

Springer

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ISSN 0302-9743 e-ISSN 1611-3349
ISBN 978-3-642-33265-4 e-ISBN 978-3-642-33266-1
DOI 10.1007/978-3-642-33266-1
Springer Heidelberg Dordrecht London New York

Library of Congress Control Number: 2012946038

CR Subject Classification (1998): I.2, F.1, I.4, I.5, J.3, H.3

LNCS Sublibrary: SL 1 – Theoretical Computer Science and General Issues

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Typesetting: Camera-ready by author, data conversion by Scientific Publishing Services, Chennai, India

Printed on acid-free paper

Springer is part of Springer Science+Business Media (www.springer.com)

Preface

The International Conference on Artificial Neural Networks (ICANN) is the annual flagship conference of the European Neural Network Society (ENNS). It is the premier European event covering all topics concerned with neural networks and related areas. The aim of ICANN is to bring together researchers from two worlds: information sciences and neurosciences. The scope is wide, ranging from machine learning algorithms to models of real nervous systems. The aim is to facilitate discussions and interactions toward developing more intelligent artificial systems and increasing our understanding of neural and cognitive processes in the brain.

The ICANN series of conferences was initiated in 1991 and soon became the major European gathering for experts in these fields. The 22nd International Conference on Artificial Neural Networks (ICANN 2012, http://icann2012.org) was held on 11–14 September 2012 in Lausanne, Switzerland, with pre-conference workshops and satellite meetings on robotics and consciousness studies held on 11 September 2012. The host organization is the University of Lausanne (UNIL) and its Faculty of Business and Economics (HEC); the venue is the Internef Building on the UNIL Dorigny Campus on the shore of Lake Geneva. We acknowledge the support of the Fondation du 450ème, the Société Académique Vaudoise, the Rectorate of UNIL, the Faculty of Business and Economics, and its Department of Information Systems. The ICANN 2012 organization is non-profit and all financial transactions are checked by the accounting office of UNIL.

The 2012 conference is characterized by two major facts: the consolidation of two parallel tracks with a new scheme of reduced fees, and the first ICANN conference without the late John G. Taylor.

A variety of topics constituted the focus of paper submissions and it was difficult to categorize the papers either in the brain-inspired computing track or in the machine learning research track. However, after the successful initiative of the organizers of ICANN 2011 in Espoo, Finland, to limit the parallel sessions to two, it appeared that a broader audience would follow the oral presentations if the same formula were adopted in 2012. From 247 papers submitted to the conference, the Program Committee and Editorial Board – after a thorough peer-review process – selected 162 papers for publication, subdivided in 82 oral presentations in 16 sessions and 80 poster presentations. The quality of the papers received was high and it was not possible to include many papers of good quality in the conference program. Papers selected for oral or poster presentations were equally good and the attribution to a specific type of presentation was decided, in the vast majority of the cases, according to the preference expressed by the authors. The dual-track, initially intended as brain-inspired computing track or machine learning research track, simply became track A and track B, because many papers presented an interdisciplinary approach, which is

in the spirit of ICANN and the goals promoted by ENNS. All posters remained on display during the three days of the conference with a mandatory presenter standing near odd numbers on Thursday 13th and near even numbers on Friday 14th. This year the organizers decided to slash the registration fee and focus on the core of ICANN activities at the expense of excluding the lunches. This scheme has proven to be successful and attracted many foreign participants, coming from 35 different countries and all continents, in particular at graduate and postgraduate levels.

This was the first ICANN after the death of Prof. John Gerald Taylor (JGT), the first president and co-founder of the European Neural Network Society (ENNS). John was born in Hayes, Kent, on August 18, 1931. He obtained a PhD in Theoretical Physics from Christ's College, Cambridge (1950–1956), where he was strongly influenced by the teaching of Paul Dirac. John G. Taylor started research in neural networks in 1969 and has contributed to many, if not all, of its subfields. In 1971 he was appointed to the established Chair in Applied Mathematics at King's College London where he founded and directed the Centre for Neural Networks. His research interests were wide, ranging from high energy physics, superstrings, quantum field theory and quantum gravity, neural computation, neural bases of behavior, and mathematical modelling in neurobiology. After observing the metal "bending" skills of Uri Geller in 1974, Prof. J.G. Taylor became interested in parapsychology and sought to establish whether there is an electromagnetic basis for the phenomenon. After careful investigation characterized by an initial enthusiasm and late skepticism he came to the conclusion, expressed in his book Science and the Supernatural (1980), that the paranormal cannot be reconciled with modern physics. After Francis Crick's hypothesis (1984) on the internal attentional searchlight role played by the thalamic reticular nucleus, Prof. Taylor became involved in developing a higher cognitive level model of consciousness, using the most recent results on attention to describe it as an engineering control system. This led him to the CODAM (attention copy) model of consciousness. In 2007, Prof. Taylor developed the first program of its kind in the hedge funds industry using artificial intelligence techniques to create portfolios of hedge funds. He also trained as an actor and performed in plays and films, wrote several science fiction plays, as well as directing stage productions in Oxford and Cambridge. Throughout his career Prof. Taylor encouraged young scientists to follow their curiosity in their search for a better understanding of nature and he served on numerous PhD dissertation juries around the world. This brief biographical sketch of John G. Taylor is not intended to be exhaustive but it is an attempt to present an exceptional person, though humble and ordinary, yet out of the ordinary, who was part of our community from the very beginning. At the ICANN conferences Prof. Taylor spent much time in the poster sessions interacting with the participants and his presence at the oral sessions was often marked by his questions and comments. The attendants at past ICANN conferences remember that at banquet dinner Prof. Taylor usually gave a short speech that was a condensed summary of his elegance and humor. I had the privilege of his friendship during the past twenty years and I am sure

that many of us will remember stories about Prof. John Gerald Taylor. Dear John, thank you for your legacy, it is now up to us to pursue your effort, make it grow and flourish.

July 2012 Alessandro E.P. Villa

John Gerald Taylor (18.VIII.1931-10.III.2012)

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