

# Lecture Notes in Artificial Intelligence 8955

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# Artificial Life and Computational Intelligence

First Australasian Conference, ACALCI 2015  
Newcastle, NSW, Australia, February 5-7, 2015  
Proceedings



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# Preface

These are the proceedings of the Australasian Conference on Artificial Life and Computational Intelligence, ACALCI 2015. Although held for the first time in 2015, this conference builds on a scientific community that supported the Australian Conference on Artificial Life (ACAL) biannually from 2005 to 2009 and extends it now with related research in the growing area of computational intelligence.

The research areas of artificial life and computational intelligence have developed from the traditional field of artificial intelligence. It is hard to define them precisely as they continue to evolve. The fascinating dimension of this research field is its interdisciplinary nature and its diverse mix of research and paper styles that can be highly technical, theoretical, philosophical, but often also seeking experimental evaluation, simulation, and ultimately some real-world application. For these proceedings, we received papers covering a variety of areas, including philosophy and theory, game environments and methods, learning, memory and optimisation, applications, and implementations.

It requires a substantial portion of good will of many people to run a conference like this. The production of the proceedings for ACALCI 2015 received plenty of voluntary and honorary advice, help, support, and contribution by various people including the committee members, their helpers, the reviewers, Springer in Heidelberg, and last but not least the authors and their research teams.

*“Every day I remind myself over and over that my outer and inner life depend upon the labors of others, living and dead, and that I must exert myself in order to give in the same measure as I have received and am still receiving.”*<sup>1</sup> - A. Einstein

This volume presents 34 papers, many of them authored or co-authored by leading researchers of their respective fields. After an initial evaluation of all 63 submissions, 55 manuscripts were regarded as of potential interest for ACALCI 2015 and underwent a full peer-review with at least three reviewers per paper. The review process consisted of over 200 reviews and resulted in 34 full papers being accepted. If we assume that each paper took 50 hours to write and each review took one hour of time, then these proceedings correspond to an in-kind

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<sup>1</sup> A translation of “Jeden Tag denke ich unzählige Male daran, daß mein äußeres und inneres Leben auf der Arbeit der jetzigen und der schon verstorbenen Menschen beruht, daß ich mich anstrengen muß, um zu geben im gleichen Ausmaß, wie ich empfangen habe und noch empfangen.” Albert Einstein (1930) “Wie ich die Welt sehe” p. 415 in Carl Seelig (ed.) “Albert Einstein - Mein Weltbild”, Ullstein Taschenbuch, 2005. [We are grateful for the source information to B. Wolff, Albert Einstein Archives, Hebrew University of Jerusalem, and to Diethard Stoffel.]

contribution of about 3,000 hours or, with an assumed hourly rate of \$50, a value of \$150,000 would be the result. Even this does not adequately value the true worth of the contributions to this volume.

The ACALCI 2015 international Program Committee consisted of 83 members from at least 14 countries including Austria, Australia, Brunei, Canada, China, France, Germany, Iran, Japan, New Zealand, Singapore, Sweden, the UK, and the USA. The authors of the accepted papers are from countries such as Australia, Canada, China, India, Iran, New Zealand, Norway, Turkey, the UK, and the USA.

In addition to the already acknowledged people and organizations, we would like to thank all other supporters and sponsors of ACALCI 2015, current and future, including the School of Creative Arts for sponsoring The University of Newcastle Conservatorium of Music Concert Hall as conference venue, the Faculty of Engineering and Built Environment and Karla Brandstater for web support, as well as the anonymous subreviewers for supporting the Program Committee.

We hope these proceedings will be useful for the research and life of many other people. We wish our readers plenty of joyful intellectual stimulation and new insights into a fascinating area of research, just as we experienced it when we had the honor to compile the work of our colleagues for this book.

February 2015

Stephan Chalup  
Alan Blair  
Marcus Randall

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ACALCI 2015 was organized by the School of Electrical Engineering and Computer Science, The University of Newcastle, in association with the University of New South Wales, Bond University, CSIRO ICT Centre in Sydney, Edith Cowan University, and The University of Queensland.

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