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Jon Crowcroft Dinesh C. Verma (Eds.)

Bio-Inspired Computing and Communication

First Workshop on Bio-Inspired Design of Networks, BIOWIRE 2007
Cambridge, UK, April 2-5, 2007
Revised Selected Papers

Volume Editors

Pietro Liò

Eiko Yoneki

Jon Crowcroft

University of Cambridge

The Computer Laboratory

William Gates Building, 15 J.J. Thomson Avenue, Cambridge CB3 0FD, UK

E-mail: {pietro.lio, eiko.yoneki, jon.crowcroft}@cl.cam.ac.uk

Dinesh C. Verma

IBM T.J. Watson Research Center

P.O. Box 704, Yorktown Heights, NY 10598, USA

E-mail: dverma@us.ibm.com

Library of Congress Control Number: 2008940650

CR Subject Classification (1998): F.1, F.2, C.2, I.6, D.1-2, H.2

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

ISSN 0302-9743

ISBN-10 3-540-92190-7 Springer Berlin Heidelberg New York

ISBN-13 978-3-540-92190-5 Springer Berlin Heidelberg New York

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Printed in Germany

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

Printed on acid-free paper SPIN: 12568628 06/3180 5 4 3 2 1 0

Preface

This volume contains the papers from BLOWIRE 2007, the first in a series of workshops on the bio-inspired design of networks, and additional papers contributed from the research area of bio-inspired computing and communication. The workshop took place at the University of Cambridge during April 2–5, 2007 with sponsorship from the US/UK International Technology Alliance in Network and Information Sciences. Its objective was to present, discuss and explore the recent developments in the field of bio-inspired design of networks, with particular regard to wireless networks and the self-organizing properties of biological networks. The workshop was organized by Jon Crowcroft (University of Cambridge), Don Towsley (University of Massachusetts), Dinesh Verma (IBM T.J. Watson Research Center), Vasilis Pappas (IBM T.J. Watson Research Center), Ananthram Swami (ARL), Tom McCutcheon (DSTL) and Pietro Liò (University of Cambridge).

The program for BLOWIRE 2007 included 54 speakers covering a diverse range of topics, categorized as follows:

1. Self-organized communication networks in insects
2. Neuronal communications
3. Bio-computing
4. Epidemiology
5. Network theory
6. Wireless and sensorial networks
7. Brain: models of sensorial integration

The BLOWIRE workshop focuses on achieving a common ground for knowledge sharing among scientists with expertise in investigating the *application domain* (e.g., biological, wireless, data communication and transportation networks) and scientists with relevant expertise in the *methodology domain* (e.g., mathematics and statistical physics of networks). The aim of the workshop is to bring researchers together, to further our insights into bio-inspired computing and communications, and to investigate collectively the challenges that remain.

As an outcome from the workshop, we decided to edit the book *Bio-Inspired Computing and Communication* that includes some of the research papers presented at the workshop and additional papers contributed from the research area of bio-inspired design of networks. We received many papers of high quality, and we selected 35 papers in the following categories. Jon Crowcroft provides further insight into our selection in the introductory section.

1. Biological networks (6 papers)
2. Network epidemics (4 papers)
3. Complex networks (7 papers)
4. Bio-inspired network model (4 papers)
5. Network protocol in wireless communication (5 papers)

6. Data management (2 papers)
7. Distributed computing (5 papers)
8. Security (2 papers)

We would like to express our deep appreciation to the authors for submitting articles, and for sharing the results of their research work with the rest of the community. Finally, we would like to thank Springer for their excellent cooperation and our sponsoring organization.

August 2008

Pietro Liò
Eiko Yoneki
Jon Crowcroft
Dinesh C. Verma

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