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Artificial Life and Evolutionary Computation

12th Italian Workshop, WIVACE 2017
Venice, Italy, September 19–21, 2017
Revised Selected Papers

Springer

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Preface

The Wivace conference series has been showing a vitality that is quite surprising, as it is not supported by any formal society or association. Instead, it is the scientific community that gathers at Wivace that continues to make it so lively. At each conference there is an informal meeting, where the organizer of the following Wivace is chosen. This method provides a continuous testing of the value of the conference for the participants, and it also explains why the flavors of various editions may differ, depending in part on the main scientific orientation of the organizers. In 2017 the burden of the organization was mostly on mathematical modelers, computer scientists, and statisticians, while in the two previous editions it had been on biologists and chemists. However, the interest of the two communities for the other's work is always high, and no "parallel sessions" are run.

The dual soul of Wivace is indeed rooted in its history, since it was born out of the coalescence of two independent initiatives. Two workshops on Artificial Life were held in 2003 in Cosenza and in 2005 in Rome, and a workshop on Evolutionary Computation took place in Milan in 2005 (as a part of the Conference of the Italian Association for Artificial Intelligence). The organizers of the two initiatives decided to co-locate their 2006 editions in Siena, sharing a day (the last day of one conference coincided with the first day of the other). It became clear that there was a strong mutual interest between the two scientific communities, so it was decided that the two initiatives had to merge – and the beautiful acronym Wivace was born![1]

The first true Wivace took place in Samperi (Sicily) in 2007, followed by the 2008 edition in Venice. This was the first time that some invited speakers and some participants came from abroad, and the conference proceedings were published in English by an international publisher. Wivace 2009 took place in Naples, and in that case the local organizer decided to work with an Italian publisher, and to accept papers in Italian. This prompted some reflections about what Wivace had to be, and it was eventually decided that its international features had to be preserved and improved. Therefore, since the edition that took place in Parma in 2012, there have always been international proceedings and international well-known invited speakers.

A possibly incomplete list of non-Italian invited speakers include Stuart Kauffman, Norman Packard, Christian Mueller-Schloer, Wim Hordijk, Yaroslav Sergeyev, Ricard Solè, Kepa Ruiz Mirazo, Olli Yli-Harja, Gabor Vattay, Steen Rasmussen, Ruedi Fuechslin, and Erik Schultes. Moreover, several Italian researchers working abroad have also been invited to Wivace.

The meeting in Milan in 2013 was followed by Wivace 2014 in Vietri sul Mare, co-located with that year's edition of Wirn, a series of workshops on neural networks dating back to 1986. In 2015 the meeting took place in Bari and in 2016 in Salerno. And in 2017 we were back in Venice, for the ninth conference under the name of Wivace.

[1] In Italian, "vivace" means "lively."

However, since (as detailed above) three "parent" Wiva workshops had taken place earlier, this can be regarded as the 12th edition of the series.

Wivace is not a big conference, the number of participants typically ranging around 50. During the conference, presentations are discussed in depth, without, however, indulging in uselessly aggressive polemics. The combination of scientific rigor with a relaxed atmosphere, and with the openness to novel suggestions and hypotheses, also facilitates informal discussions and exchange of ideas.

We have been lucky to host some invited speakers who combined their outstanding scientific merits with the capability to effectively communicate their thoughts, and thus we are deeply indebted to Stuart Kauffman, Steen Rasmussen, Ruedi Fuechslin, Erik Schultes, and Roberto Taramelli for their contributions.

The review process was quite long, involving two phases. The call for papers left the choice of presenting an extended abstract or a full paper to the contributors, and the acceptance of the presentation to the conference was based on this document. Two reviewers were involved for each submission, and comments and suggestions were sent to the authors. After the conference, all the authors of accepted contributions were asked to send a full paper, which was scrutinized by three reviewers who also sent their evaluations and suggestions for improvements. The 23 papers in this volume are the outcome of this selection procedure. We thank all the contributors and all the participants for their role in making Wivace 2017 a successful event. And special thanks are due to the members of the Program Committee and the reviewers for their precious work.

This year's organization profited from the strong and highly qualified support of the European Centre for Living Technology (ECLT), an international research center run by the Università Cà Foscari, which is associated with several universities and research institutions in Europe and the USA. We wish to thank in particular Agnese Boscarol and Roberta D'Argenio, who managed the complicated organizational and financial aspects of the conference, and Marco Fiorucci, who took care of the website. We also thank the student Feliks Hibraji for his help.

Thanks are also due to the host institutions of the organizers, namely, the Università Ca' Foscari di Venezia, the Università di Modena e Reggio Emilia, and the Università di Bologna.

Let us finally acknowledge the precious advice of the staff at Springer, who provided their professional support through all the phases that led to this volume.

February 2018

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