

Studies in Computational Intelligence

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Complex Networks and Their Applications VII

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Applications COMPLEX NETWORKS 2018

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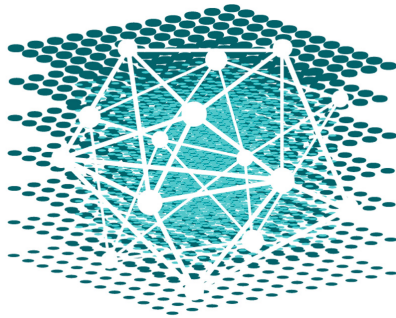
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COMPLEX NETWORKS

Preface

The International Conference on Complex Networks and their Applications has been initiated in 2011 and has grown to become one of the major international events in network science.

This year it is hosted at the University of Cambridge which has a long, successful tradition for cultivating interdisciplinarity and multidisciplinary.

The variety of scientific topics ranges from network and graph theory, statistical mechanics, models of networks, community structure, geometry, visualization, financial and economic networks, social and urban networks, human behavior, epidemic models, political networks, earth sciences applications, control and synchronization, resilience and robustness, machine learning and other fields of computer science, network medicine and neuroscience, and many others. Therefore, only a large conference such as The International Conference on Complex Networks and their Applications could exploit the “speciation” of the network fields to generate inspiration, enchantment, and cross-fertilization between fundamental issues and innovative applications.

This is clearly reflected in the volume of proceedings that contain a high-quality selection of papers presented during the seventh edition, hosted at the Department of Computer Science and Technology of the University of Cambridge (UK)—a truly place of innovators—from December 11 to December 13, 2018.

Numbers talk by themselves: We received 421 submissions originating from more than 50 countries around the world; in particular, we received submissions from countries usually not represented in other similar conferences. Each paper has been peer-reviewed by three independent reviewers from a large international program committee. After the review process, 123 papers were selected to be included in the proceedings.

Certainly, the success of the conference depends on the authors who have produced high-quality papers. It goes also to the impressive list of keynote speakers. Our speakers are:

- Vittoria Colizza (INSERM, France): “Vulnerability of Networked Host Populations to Epidemics”

- Aristides Gionis (Aalto University, Finland): “Maximizing Diversity in Social Networks”
- Heather Harrington (Oxford University): “Topological Data Analysis for Investigation of Dynamics and Biological Networks”
- Sune Lehmann (Technical University of Denmark, Denmark): “Measuring Social Networks with High Resolution: What Have We Learned?”
- Hernan Makse (City College of New York, USA): “Essential Nodes and Keystone Species in the Brain, Ecosystems and Social Systems”
- Romualdo Pastor-Satorras (Universitat Politècnica de Catalunya, Spain): “Effects of Social Influence on Collective Motion”
- Markus Strohmaier (RWTH Aachen University, Germany): “Modeling Minorities in Social Networks”
- Donald Towsley (UMass Amherst, USA): “Motifs in Social Networks.”

These keynote talks provide a remarkable tessellation of the entire field of complex networks. In some sense, the ensemble of the topics addressed by the keynote speakers provides itself an example of data integration.

Traditionally, prior to the conference, two tutorials are delivered. This year, Jesús Gómez-Gardeñes (University of Zaragoza, Spain) gave a lecture entitled “Network Epidemiology: From Simple to Data-Driven Models” and Silvio Lattanzi (Google Zurich, Switzerland) delivered the lecture “From Micro to Macro: Ego-Network Analysis and Its Applications.”

Each edition of the conference represents a challenge that cannot be successfully achieved without the deep involvement of plenty of people, institutions, and sponsors.

First of all, our sincere gratitude goes to the members of the advisory board: Jon Crowcroft (University of Cambridge, UK), Raissa D’Souza (University of California, Davis, USA), Eugene Stanley (Boston University, USA), and Ben Y. Zhao (University of Chicago, USA). They inspire the essence of the conference.

We record our thanks to our fellow members of the Organizing Committee.

Elsa Arcaute (UCL, UK), Márton Karsai (ENS/INRIA Lyon, France), and Jat Singh (University of Cambridge, UK), the poster chairs for arranging the poster sessions program.

Sebastian Anherth (University of Cambridge, UK), Jean-Charles Delvenne (UC Louvain, Belgium), and Huijuan Wang (TU Delft, The Netherlands), for arranging and chairing the lightning sessions program.

Jinhu Lü (Chinese Ac. Science, Beijing, China), Sarah Morgan (University of Cambridge, UK), and Eiko Yoneki (University of Cambridge, UK), the tutorial chairs for managing the tutorials.

Carlos Gershenson (UNA de Mexico, Mexico), Bruno Gonçalves (New York University, USA), Leto Peel (UC Louvain, Belgium), and Feng Xia (Dalian University of Technology, China), the publicity chairs for encouraging participation from, respectively, America, Europe, and Asia.

We extend our thanks to the Milan team (University of Milan, Italy): Sabrina Gaito, the publication chair, Matteo Zignani, the web chair, and Christian Quadri, the submission chair for the incredible work they have done, in maintaining the Web site and editing the proceedings and the book of abstracts.

We would also like to record our appreciation for the work of the Local Committee chairs, Jat Singh and Petra Vertes and members, William Grant, Giovanna Maria Dimitri, Sandra Servia Rodriguez, and Helena Andres for their tremendous work to make this edition a success.

We are also indebted to our partners, Alessandro Fellegara and Alessandro Egro (Tribe Communication), for their passion and patience in designing such an amazing visual identity of the Conference.

We would like to express our gratitude to the editors involved in the sponsoring of the conference: Cambridge University Press, Elsevier, MDPI, Plos, World Scientific, and Springer Nature.

We would also like to express our deepest appreciation to all those who make the growing success of this meeting year after year. Sincere thanks to the contributors, the richness of the technical program would not be possible without their creativity.

Finally, we would like to express our most sincere thanks to the Program Committee members for their huge effort to produce more than 1200 high-quality reviews within a very short time.

These volumes make the most advanced contribution of the international community to the research issues surrounding the fascinating world of complex networks.

We hope that you enjoy the papers as much as we enjoyed organizing the conference and putting this collection together.

December 2018

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