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# Computer Science Protecting Human Society Against Epidemics

Aleksander Byrski, Tadeusz Czachórski, Erol Gelenbe, Krzysztof Grochla,  
Yuko Murayama

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*IFIP is the global non-profit federation of societies of ICT professionals that aims at achieving a worldwide professional and socially responsible development and application of information and communication technologies.*

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The flagship event is the IFIP World Computer Congress, at which both invited and contributed papers are presented. Contributed papers are rigorously refereed and the rejection rate is high.

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Aleksander Byrski · Tadeusz Czachórski ·  
Erol Gelenbe · Krzysztof Grochla ·  
Yuko Murayama (Eds.)


# Computer Science Protecting Human Society Against Epidemics


First IFIP TC 5 International Conference, ANTICOVID 2021  
Virtual Event, June 28–29, 2021  
Revised Selected Papers


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# Preface

The COVID-19 pandemic concerns everyone. Therefore, in this volume we present the proceedings of the working conference on “Computer Science Protecting Human Society Against Epidemics” that was held online during June 28–29, 2021. The proposal for the event emanated from the Committee on Informatics of the Polish Academy of Sciences (which is an IFIP member) and was sustained by Technical Committee 5 of IFIP on Information Technology Applications, and especially by its Working Group WG 5.15 Information Technology in Disaster Risk Reduction.

The main topics of the conference were announced as comprising the following:

- IT support for modeling and understanding the COVID-19 pandemic and its effects,
- IT aspects of social life during a pandemic, and
- Security and privacy during pandemics.

This volume contains the best 11 submissions (10 full articles and a work in progress) from authors in various countries in three continents, namely Bangladesh, Bulgaria, France, Kazakhstan, Latvia, Poland, Russia, Slovenia, UK, Ukraine, and the USA. Many of these papers are the outcome of international collaborations.

Even if the number of contributions in these proceedings is small, they concern a very large spectrum of problems, ranging from linguistics for automatic translation of medical terms to a proposition for a worldwide system of fast reaction to emerging pandemics. Some of the papers relate to mathematics and modeling, such as statistical problems related to death-rate computations and the use of information entropy in the analysis of pandemic waves viewed as stochastic time series. Some papers deal with numerical problems in epidemiological models, deep learning, and neural networks to forecast the spread of pandemics. Other papers discuss high-performance computing systems for fighting pandemics, monitoring virus spread, and bioinformatics for virus analysis. We also have an empirical study of the impact of pandemics on student life, and a study of journal attitudes towards pandemics.

We are very grateful to the authors of all submitted or accepted papers for their contributions. We also thank the keynote speaker who kindly accepted our invitation. Finally, we wish to thank the Program Committee members and the referees for their important contributions to these proceedings.

July 2021

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