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September, 22– 24, 2022, Split, Croatia (hybrid conference)

Proceedings of the 13th Symposium on Green Networking and Computing (SGNC 2022)

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WELCOME

SYMPOSIUM INFORMATION
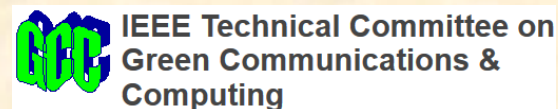
COMMITTEE

PROGRAM

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AUTHORS

In cooperation with:

IEEE Technical Committee on Green Communications & Computing

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Organisers:

ORGANIZER MESSAGE FOR THE 13TH SYMPOSIUM ON GREEN NETWORKING AND COMPUTING (SGNC 2022)

Foreword

Welcome to the Proceedings of the 13th Symposium on Green Networking and Computing (SGNC2022)! This collection of papers presented in this proceedings showcases cutting-edge research and advancements in the field of sustainable networking and computing. The symposium serves as a platform for researchers, academics, industry professionals, and policymakers to come together and explore innovative approaches to address the environmental challenges associated with improving the energy efficiency of information and communication technologies (ICT). In recent years, the growing demand for data-intensive applications, the proliferation of connected devices, and the ever-expanding digital infrastructure have significantly increased energy consumption and carbon emissions in the networking and computing domains. This has raised concerns about the environmental impact of these technologies and has highlighted the urgent need for sustainable solutions.

The 13th Symposium on Green Networking and Computing (SGNC2022) aims to foster a multidisciplinary dialogue and promote collaborations among experts from various fields, including computer science, electrical engineering, environmental science, and policy-making. By bringing together diverse perspectives, the symposium encourages the exchange of ideas, research findings, and best practices that can lead to the development of energy-efficient, eco-friendly, and socially responsible networking and computing systems.

The 13th in a row Symposium on green networking and computing (SGNC 2022) was organized in the frame of the 30th International Conference on Software, Telecommunications and Computer Networks (SoftCOM 2022). The SGNC 2022 symposium was held on September 22, 2022, in Split, Croatia. The organizer of the 13th Symposium on green networking and computing (SGNC 2022) is the Faculty of electrical engineering, mechanical engineering and naval architecture (FESB) of the University of Split, Croatia. The SGNC 2022 symposium is organized in cooperation with the IEEE ComSoc Technical Committee on Green Communications and Computing (TCGCC) and with the support of the Croatian ACM chapter (CRO ACM).

In the frame of the 13th SGNC 2022 symposium, four accepted papers have been presented in the Special session on green networking and computing. Topics analyzed in the presented papers include: the energy-efficient and context-aware mobile node trajectory planning for mobile data collection in the Internet of Things (IoT) systems using deep reinforcement learning, the development of the approach based on virtual software-defined networking (vSDN) for optimizing network power consumption, the simulation of cooling power dependency on IT equipment consumption and outdoor temperature for real-world data center and the development of the pre-wakeup algorithm from the central processing unit (CPU) idle state which is dedicated to reducing the latency and power consumption of servers.

Each paper in these proceedings represents the collective efforts of researchers and practitioners who are at the forefront of exploring novel approaches to mitigate the ecological footprint of networking and computing systems. I extend gratitude to all the authors for their valuable contributions and to the reviewers for their diligent evaluation. I also express appreciation to the organizing committee for their support in making this symposium possible. I hope that these proceedings will serve as a valuable resource for researchers, professionals, and policymakers seeking to deepen their understanding of green networking and computing and inspire further research and innovation in this crucial field.

Symposium Chair

Josip Lorincz, PhD

PROCEEDINGS INFORMATION

Proceedings of the 13th Symposium on green networking and computing 2022 (SGNC 2022)
International Conference on Software, Telecommunications and Computer Networks (*SoftCOM* 2022)

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SYMPOSIUM PROGRAM

SS4 – Special session on Green Networking and Computing
Session chair: *Josip Lorincz, Ph. D., FESB, University of Split, Croatia*
September 22, 2022, 09:00 – 10:30, Conference room Palma I

Tracks

❑   *Special Session on Green Networking and Computing*

SS5 – *Special Session on Green Networking and Computing*

Special session organizer: *Josip Lorincz (University of Split, Croatia)*
Special session chair: *Josip Lorincz (University of Split, Croatia)*

❑ **Energy Efficient and Context-aware Trajectory Planning for Mobile Data Collection in IoT using Deep Reinforcement Learning**
Sana Benhamaid (University of Technology of Compiegne & Heudiasyc Laboratory, France); Hicham Lakhlef, and Abdelmadjid Bouabdallah (Universite de Technologie - Compiegne, France)

❑ **An Approach based on vSDN to Optimize Power Consumption**
Euclides Neto (University of New Brunswick, Canada); Gustavo Callou (Federal Rural University of Pernambuco & UFRPE, Brazil)

❑ **Cooling power dependency simulation for real-world data center data**
Jana Backhus (Hitachi America Ltd., USA); Yasutaka Kono (Hitachi Ltd., Japan)

❑ **PWU: Pre-Wakeup for CPU Idle to Reduce Latency and Power Consumption**
Kei Fujimoto, Hikaru Harasawa and Ko Natori (NTT Corporation, Japan); Ikuo Otani (NTT, Japan); Shogo Saito and Akinori Shiraga (NTT Corporation, Japan)

Authors

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