# Editorial

## Frontiers in Contemporary Computer Science: Bridging Theory and Practice

**Guest Editor: William Steingartner**

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## Guest Editor: William Steingartner

We prepared this special issue to showcase recent advancements and emerging trends in informatics, reflecting innovative research contributions across diverse areas of computer science. The issue provides a platform for exploring both theoretical foundations and applied methodologies, fostering collaboration and knowledge exchange. It spans a wide range of topics and reflects the dynamic nature of the field and the importance of interdisciplinary collaboration. Namely, these works provide a snapshot of cutting-edge developments in informatics, offering valuable insights for both researchers and practitioners.

After careful consideration, we approached several experts in the field who contributed to this special issue with high-quality papers reflecting their research.

**Paper 1. Optimization and Standardization Challenges in 3D Hydrogel Bioprinting,** by Mária Danko, Jana Hlubeňová, Zuzana Naďová, Jozef Živčák, and Radovan Hudák

The authors' team did an interesting study that reviews existing standards for hydrogel materials in 3D bioprinting, assessing their suitability and highlighting the need for customized guidelines to improve printability, structural integrity, and safety.

**Paper 2. Building temporal architecture on transaction logs,** by Michal Kvet

The author of this article proposes an enhanced transaction log indexing method to efficiently retrieve historical data in conventional databases, reducing processing time and costs while maintaining seamless user interaction.

**Paper 3. Tobii Eye Tracking Device and Development of Unity Applications,** by Patrik Voštinár and Michal Šrobár

This paper presents two Unity-based applications for the Tobii Eye Tracking device, showcasing its potential for gaming and assistive communication by enabling computer interaction solely through eye movements.

**Paper 4. Application of OSINT Methods in Ensuring Cybersecurity,** by Sabina Szymoniak, Kacper Foks, and Aleksandra Pyrkosz-Dziubczyk

The fourth article examines a very interesting problem. In their study, the authors explore the role of OSINT (Open-source intelligence) in cybersecurity, addressing challenges like data overload and ethical concerns, and propose a structured approach to enhance threat detection through automation and contextual verification.

**Paper 5. Morning Circle Web Application for Students with Special Educational Needs,** by Petr Šaloun, Tereza Šimková, Lukáš Tomaszek, William Steingartner, Ivona Třísková, Milan Klement; and Lucie Bryndová

The use of modern technologies today to support or facilitate certain activities in the field of education is presented in this paper. It presents a digital application for the morning circle method in special education, demonstrating its positive impact on student motivation and behavior based on testing in two special elementary schools.

**Paper 6. Web Application for Large Language Model-based Diagnostic Analysis of Correlation Maps**, by Michal Vagač and Adam Dudáš

As a very current problem, the authors Michal Vagač and Adam Dudáš in the work Web Application for Large Language Model-based Diagnostic Analysis of Correlation Maps present a web-based application integrating large language models and correlation analysis for diagnostic data analysis, enhancing interpretability through interactive visualizations and automated domain-specific explanations.

**Paper 7. Current Aspects of the Data Ecosystems**, by Monika Borkovcová, Marek Kvet and Tomáš Dokoupi

This study examines current trends and future directions in data ecosystems, focusing on efficient management, real-time analysis, ETL optimization, generative models, and the growing role of cloud services in scalable data processing.

**Paper 8: Kolmogorov-Arnold Networks in Identification of Chromatic Index of Cubic Graphs**, by Bianka Modrovičová and Adam Dudáš

This work has an impact on the field of theoretical computer science. This study introduces and evaluates the Kolmogorov-Arnold Network for approximating the chromatic index of graphs, exploring its decision-making quality, interpretability, and performance through conventional classification metrics and visualization techniques.

From the regular submission:

**Paper 9: Surface Glycoprotein Classification Using Repeat Sequences from the field of Biomedical Engineering**, Samira Alshafah, Miloš V. Beljanski, and Nenad S. Mitić

Very interesting is also the work that presents a method for characterizing surface glycoproteins in viruses by using amino-acid and nucleotide repeat sequences to form a virus/protein profile, which is then used to predict the type of virus through a classification model.

**Paper 10: The Place and Role of Honeypot Solutions in Network Intrusion Detection Systems**, by Čisar, Petar

This paper covers honeypots, as deception-based security tools, that play a crucial role in Network Intrusion Detection Systems (NIDS) by defrauding attackers and collecting intelligence on their tactics. The survey provides a systematic and comprehensive review of honeypot solutions within modern NIDS, offering an in-depth categorization of different types of honeypots,

The authors themselves contributed to the quality of this special issue with their scientific results. But no less important was the role of the reviewers, who, with their comments and recommendations, guaranteed the high quality of the accepted articles. Each article was subjected to a strict double peer review.

In conclusion, this special issue highlights significant advancements in informatics, presenting innovative research across diverse areas of computer science. The contributions in this volume span a wide range of topics and reflect the dynamic nature of the field and the importance of interdisciplinary collaboration. We are grateful for the valuable contributions of the authors, who have provided high-quality research, and for the essential role of the reviewers, whose insights ensured the rigour and quality of this special issue. Together, these works provide a snapshot of cutting-edge developments in informatics, offering valuable insights for both researchers and practitioners.

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