Foreword

The International Olympiad in Informatics (IOI) is an annual global competition in informatics for individual contestants from over 80 invited countries. The event also includes a one-day scientific conference for delegation leaders, organizers, and guests, providing an excellent opportunity for the IOI community to communicate and exchange ideas. Many countries have a variety of topics to present and discuss.

The IOI Journal focuses on the research and practice of computing professionals who teach informatics to talented secondary and high school students. The journal is closely connected to the scientific conference held annually during the IOI. The 18th volume of the journal has two tracks: the first section focuses on research, and the second section is devoted to sharing national experiences. This volume features contributions from regular contributors as well as new authors.

Researchers from Italian universities, Giorgio Audrito, Sara Capecchi, Madalina G. Ciobanu, and Luigi Laura, have analyzed Giochi di Fibonacci (Fibonacci's games), a programming contest for upper primary and lower secondary school students. The contest is organized in three phases: the first phase is based solely on logical and algorithmic quizzes, while the other two phases involve coding using a Blockly environment integrated into the contest platform.

Mirvari Mammadli, Nihad Mammadli, and Jamaladdin Hasanov presented a model for analyzing contestant progress in real-time coding contests, emphasizing the critical need for effective measures in assessing code similarity and plagiarism. Current coding contest platforms often lack robust procedures to identify and address these issues, compromising the integrity of the evaluation process. To tackle these challenges, the authors propose a novel system that leverages advanced techniques to analyze code and collective behavior, providing a holistic evaluation of submissions. This system enhances the accuracy of performance assessment and maintains fairness and credibility in real-time coding contests. The findings from this study highlight the importance of integrating sophisticated mechanisms to ensure the authenticity of code submissions and uphold the competitive nature of coding competitions.

Tom Verhoeff, in his paper with the intriguing title "Staying DRY with OO and FP", discusses the coding principle of not repeating code and compares various tactics to achieve DRY code in both object-oriented and functional programming contexts. He encourages IOI team leaders to study the examples in this article with their contestants. Verhoeff believes that higher-order functions, which use functions as parameters and return functions, are powerful tools. While it takes some practice to get used to the functional style, he is convinced that clever contestants will enjoy it.

Representatives from this year's IOI hosting country, Egypt, Eslam M. Wageed, Yousry S. Elgamal, Ossama M. Ismail, and Mohamed H. Abdrabou, have shared their

experiences on non-formal education as a solution to the requirements of the era. They suggest implementing non-formal education through seminars, training camps, and workshops, including additional activities like competitions or extracurricular learning. Their study investigates the impact of non-formal educational approaches on engineering and computer science students' academic performance and their chances of obtaining a job after graduation.

Felix Steinert, Julia Kummer, Martina Landman, and Lukas Lehner reported on a two-day informatics workshop for Austrian pupils aged eleven to thirteen. The workshop included unplugged activities about algorithms, AI, robotics, and block-based programming using Scratch and Sphero BOLT. Feedback from 110 participants showed a significant gain in knowledge and high interest in computer science. The report details the favorite activities and experiences of the ten workshop leaders.

Several papers in this volume focus on contests and Olympiads: popularizing science competitions by M. Kaykobad; statistical analyses of IOI 2011 to 2023 performance data, emphasizing returning contestants and identifying geographic trends, by E. Lee, T. Reizin, and F. E. Wu; preparing the youngest students for programming contests by K. Manev; Olympiads without words by P. S. Pankov and E. J. Bayalieva; and advancements in algorithmic problem-solving by A. Taneja and A. Kothari.

In the second part of the volume, authors from Belarus, Japan, Palestine, and Latin American countries share their experiences, news, and approaches. K. Mirjalali and A. Behjati presented an IOI project report on enhancing the Task Preparation System, while A. Yusubov discussed updates to the official IOI website.

We extend our deepest gratitude to everyone who contributed to this volume, especially the authors and reviewers. Their dedication and hard work in writing, reviewing, and refining the papers have been crucial in creating this exceptional collection. We also warmly thank all the participants, speakers at the conference, and members of the IOI community. We hope this has been a memorable and enriching experience for all involved.

<div align="right">Editors</div>