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(Eds.)

4th International Workshop of IT-professionals on Artificial Intelligence

ProfIT AI 2024

Cambridge, MA, USA

September, 25-27, 2024

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Preface

It is our pleasure to present you the proceedings of 4th International Workshop of IT-professionals on Artificial Intelligence (ProfIT AI 2024), Cambridge, MA, USA, 25-27 September, 2024.

The workshop was organized by National Aerospace University "Kharkiv Aviation Institute" (Kharkiv, Ukraine) and Massachusetts Institute of Technology (Cambridge, MA, USA).

ProfIT AI 2024 is intended to discuss practical aspects of the latest research and results of international scientists and practitioners related to artificial intelligence. Aim of the workshop is to exchange new ideas, obtained theoretical and practical results of scientific research in the field of artificial intelligence, to discuss the current stage of the industry all around the world, to integrate efforts to introduce research results, the establishment of creative contacts and the expansion of scientific ties. We believe that the workshop results are going to make a significant contribution to the development of artificial intelligence.

The workshop was supported by the largest associations of Ukraine: **Ukrainian Scientific IT Society**, **Kharkiv IT Cluster** and **Coordinating council of the National Academy of Sciences of Ukraine on Artificial Intelligence**.

The workshop is soliciting literature review, survey and research papers including, whilst not limited to, the following areas of interest:

- Natural Language Processing;
- Computer Vision;
- Intelligent Systems;
- Intelligent Methods in Healthcare;
- Artificial Intelligence Ethics, Policy and Governance.

The language of Workshop ProfIT AI 2024 is English. The Workshop took the form of oral presentations of peer-reviewed regular papers.

Submitted papers was peer-reviewed by two reviewers from at least two counties on the basis of technical quality, relevance, originality, significance, and clarity. The Program Committee used reviews to determine which papers could be accepted for presentation at the workshop.111 papers were received, 39 papers were accepted **(Acceptance rate is 35%)**. All accepted papers were presented during the Workshop.

The workshop would not have been possible without the support of many people. First of all, we would like to thank the program and organization staff, the members of the Technical Program Committees and external reviewers for their excellent and tireless work. We express special thanks to the Global MIT At-Risk Fellows (GMAF) Program for their support. We sincerely wish that all attendees benefited scientifically from the workshop and wish them every success in their research. It is the humble wish of the workshop organizers that the professional dialogue among the researchers, scientists, engineers and doctors continues beyond the event and that the friendships and collaborations forged will linger and prosper for many years to come.

The International Workshop of IT-professionals on Artificial Intelligence (ProfIT AI) was first held in 2021 at the National Aerospace University "Kharkiv Aviation Institute" in Kharkiv (Ukraine). In 2022, during the planning of the second workshop, on February 24, Russia invaded Ukraine. Kharkiv became a place of bloody battles, and its inhabitants showed courage in fighting against the Russian occupiers. At the National Aerospace University "Kharkiv Aviation Institute", which was the venue for the first workshop, the Russian army carried out more than 200 missile and bomb strikes. This brought

destruction to the campus, which continues to recover. The escalation of the Russian war in Ukraine, in addition to massive destruction and loss of life, led to a forced transformation of the academic and scientific sphere. Despite this, Ukrainian scientists continue their research in the face of war, limited resources, power outages, and heating. Therefore, 2nd International Workshop of IT-professionals on Artificial Intelligence "ProfIT AI 2022" was organized in Lodz University of Technology and its Institute of Information Technology. And the 3rd International Workshop of IT-professionals on Artificial Intelligence "ProfIT AI 2023" was organized in University of Waterloo. We would like to express special thanks to the Massachusetts Institute of Technology and particularly Computer Science and Artificial Intelligence Lab, which became the venue for the 4th International Workshop of IT-professionals on Artificial Intelligence "ProfIT AI 2024". Furthermore, we express special thanks to the Armed Forces of Ukraine and the brave Ukrainian people, who show unimaginable courage in the struggle for freedom and democratic values.

2024

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