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Progress in Artificial Intelligence

23rd EPIA Conference on Artificial Intelligence, EPIA 2024
Viana do Castelo, Portugal, September 3–6, 2024
Proceedings, Part I

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Pedro Miguel Moreira
Editors

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Proceedings, Part I

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Preface

The EPIA Conference on Artificial Intelligence is a well-established conference in the field of Artificial Intelligence (AI). This 23rd edition, EPIA 2024, was held in Viana do Castelo at the Polytechnic Institute of Viana do Castelo (IPVC), during September 3–6, 2024 (<https://epia2024.pt/>).

Viana do Castelo is one of the most beautiful cities in the north of Portugal. Its involvement in the Portuguese Discoveries and, later, cod fishing shows its traditional connection to the sea. The baroque church, situated in a location that affords views of the sea, which has played a role in Viana's history, houses the image of *Nossa Senhora da Agonia*, the patron saint of fishermen. She is taken out annually on the 20th of August to bless the sea in one of Portugal's most colourful festivals, where the beauty and richness of the costumes that are paraded during the festivities are particularly noteworthy.

The conference is organized under the auspices of the Portuguese Association for Artificial Intelligence (APPIA – <http://www.appia.pt>). EPIA covers theoretical and fundamental questions and applications, allowing scientific exchange between researchers, engineers and professionals in related disciplines.

The EPIA 2024 program included thematic tracks dedicated to specific areas in AI. This year's conference featured a Student Symposium on Artificial Intelligence and the following 15 tracks:

- AI and Creativity (AIC);
- Ambient Intelligence and Affective Environments (AmIA);
- Artificial Intelligence and IoT in Agriculture (AIoTA);
- Artificial Intelligence and Law (AIL);
- Artificial Intelligence for Industry and Societies (AI4IS);
- Artificial Intelligence in Medicine (AIM);
- Artificial Intelligence in Power and Energy Systems (AIPES);
- Artificial Intelligence in Transportation Systems (AITS);
- Ethics and Responsibility in AI (ERAI);
- General AI (GAI);
- Generative AI – Foundations and Applications (GenAI)
- Intelligent Robotics (IROBOT);
- Knowledge Discovery and Business Intelligence (KDBI);
- Natural Language Processing, Text Mining and Applications (TeMA);
- Data-Centric AI – Solutions and Emerging Technologies (DCenAI);

In this edition EPIA received 187 submissions from 27 different countries. Each submission was double-blind reviewed by at least three Program Committee (PC) members of each thematic track. These three volumes contain all the accepted papers from the thematic tracks, totalling 94 papers, and 15 posters that were accepted for the Student Symposium on Artificial Intelligence.

The conference also received three outstanding keynote speakers: Virginia Dignum (Umeå University, Sweden) with a talk on “Beyond the AI hype: Balancing Innovation

and Social Responsibility”; François Pachet (Former Director of Research at the Spotify Creator Technology Research Lab and Founder of Stealth Startup, France) with a talk on “AI and music: is the problem solved?”; and Francisco Herrera (University of Granada, Spain) with a talk on “Explainable AI: A road still to travel”. The invited talks’ abstracts are included in these proceedings’ front matter.

The EPIA organizers are thankful to the thematic track organizing chairs and their respective Program Committee members. Very special thanks to Carlos Alves, our Designer Chair, all the student volunteers and the Local Organizing Committee. All did fantastic and wonderful work, contributing to an effective and successful conference. The organization would also like to express our gratitude to all the EPIA International Steering Committee members for their guidance regarding the scientific organization of EPIA 2024. And to conclude, a word of thanks to our hosts, the Polytechnic Institute of Viana do Castelo and the municipality of Viana do Castelo.

September 2024

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Obituary

We would like to pay tribute to our colleague José Maia Neves, an enthusiast and important supporter of research in Artificial Intelligence (AI). Throughout his career, he made significant contributions that inspired countless individuals and helped to advance AI research.

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