ENIAC 2022

Proceedings

19th National Meeting on Artificial and Computational Intelligence

XIX Encontro Nacional de Inteligência Artificial e Computacional

Event co-located with the 11th Brazilian Conference on Intelligent System (BRACIS)
Campinas-SP, Brazil, November 28 - December 01 , 2022

Rodrigo Coelho Barros (PUCRS)
Ricardo Marcacini (ICMC-USP)

(Program Chairs and Editors)

PREFACE

The National Meeting on Artificial and Computational Intelligence (ENIAC) is one of the main national forums for researchers, practitioners, educators, and students to present and discuss innovations, trends, experiences, and developments in the field of Artificial and Computational Intelligence. In particular, ENIAC is the ideal forum for undergraduate and graduate students to get their first experience in a large scientific conference. Following up on previous events, this year there was a special track for papers authored by Undergraduate students. Such papers were evaluated by the same reviewing process as papers in the main track.

The 19th ENIAC was co-located with the 11th Brazilian Conference on Intelligent System (BRACIS). This proceedings includes 70 full papers selected by a double-blind review process (authors' names and institutions were omitted in the papers), in which all submitted papers were reviewed by, at least, two experts in the research field.

TOPICS OF INTEREST

The event was focused on articles containing new ideas, discussions on existing work, practical studies, and experiments relevant to the field of Artificial and Computational Intelligence, which have not been previously published. The topics of interest included, but were not limited to:

- AI in Emerging Countries: Public Policies and the Future of Work
- Applications of Artificial Intelligence
- Artificial Life
- Artificial Neural Networks and Deep Learning
- Automated Planning and Scheduling
- Automated Reasoning
- Computational Intelligence
- Computer Vision
- Complex Networks
- Data Mining
- Data Science
- Decision Making in Food Production Networks
- Decision Support Systems
- Distributed Artificial Intelligence and Multiagent Systems
- Evolutionary Computation and Metaheuristics
- Fundamentals of Artificial Intelligence
- Fuzzy Systems
- Graph-Oriented Machine Learning
- Hybrid Intelligent Systems
- Intelligent Human-Computer Interfaces
- Intelligent Information Systems
- Intelligent Robotic

- ○ Intelligent Tutoring Systems
- ○ Knowledge Acquisition
- ○ Knowledge Base Construction
- ○ Knowledge-Enhanced Machine Learning
- ○ Knowledge Representation and Reasoning
- ○ Logic Programming
- ○ Machine Learning
- ○ Machine Learning for Medical Diagnosis
- ○ Model-Based Reasoning
- ○ Natural Language Processing
- ○ Natural Language Processing in Portuguese
- ○ Ontologies
- ○ Representation Learning
- ○ Software Tools for Artificial Intelligence
- ○ Text and Web Mining

BEST PAPERS

The best papers selected from the main track were:

1. Best Paper Award:

    1st place: Establishing the Parameters of a Decentralized Neural Machine Learning Model. **Authors:** *Aline Ioste, Marcelo Finger*

    2nd place: On the evaluation of example-dependent cost-sensitive models for tax debts classification. **Authors:** *Helton Lima, Damires Souza, Thiago Moura*

    3rd place: The Brazilian Data at Risk in the Age of AI? **Authors:** *Raoni Texeira, Rafael Januzi, Fabio Faria*

The best papers selected from the undergraduate track were:

1. Best Paper Award:

    1st place: Simulation of Rat Behavior in a Light-Dark Box via Neuroevolution. **Authors:** *Marco Aurelio Bastos Souza, João Tarrega, Edson Eduardo Borges Silva, Renato Tinos, Ariadne Andrade Costa*

    2nd place: Convolutional architectures with LSTM and TCN to embolism classification: exploring dependency between data. **Authors:** *Luiz Guilherme Zanini, Aldomar Pietro Santana Silva, Felipe Almeida, Anna Helena Reali Costa, Fatima Nunes*

    3rd place: A Study on Class Activation Map Methods to Detect Masses in Mammography Images using Weakly Supervised Learning. **Authors:** *Vicente*

Alencar, Filipe Cordeiro

JUDGING COMMITTEE (BEST PAPER MAIN/UNDERGRADUATE TRACK):

- ○ Heloisa de Arruda Camargo (UFSCAR)
- ○ Solange Oliveira Rezende (ICMC-USP)
- ○ André Britto (UFS)

TECHNICAL PROGRAM COMMITTEE AND REVIEWERS

Alan Valejo (Universidade de São Carlos (UFSCar))
Aline Paes (Universidade Federal Fluminense)
Ana Trindade Winck (Universidade Federal de Ciências da Saúde de Porto Alegre)
Ana Carolina Lorena (Instituto Tecnológico de Aeronáutica (ITA))
Ana Cristina B. Kochem Vendramin (UTFPR (Universidade Tecnológica Federal do Paraná))
André Britto (Universidade Federal do Sergipe)
André Gustavo Maletzke (Universidade Estadual do Oeste do Paraná)
Anna Helena Reali Costa (Universidade de São Paulo)
Anne Canuto (UFRN)
Antonio Parmezan (Universidade de São Paulo)
Ariani Di Felippo (Universidade Federal de São Carlos)
Arnaldo Candido Junior (UTFPR)
Aurora Pozo (UFPR)
Bruno Nogueira (Universidade Federal de Mato Grosso do Sul)
Carlos Ferrero (Instituto Federal de Santa Catarina)
Carlos Thomaz (FEI)
Carolina Paula de Almeida (State University in the Midwest of Paraná - UNICENTRO)
Cinthyan Renata Barbosa (UEL - Universidade Estadual de Londrina)
Cleber Zanchettin (Universidade Federal de Pernambuco)
Cristiano Costa (Universidade do Vale do Rio dos Sinos)
Danilo Silva (Universidade Federal de Santa Catarina (UFSC))
Dario Calçada (Universidade Estadual do Piauí)
Denis Mauá (Universidade de São Paulo)
Diana Adamatti (Universidade Federal do Rio Grande - FURG)
Diego Furtado Silva (Universidade de São Paulo)
Edjard Mota (UFAM)
Edson Matsubara (Fundação Universidade Federal de Mato Grosso do Sul)
Eduardo Luz (Universidade Federal de Ouro Preto)
Edward Hermann Haeusler (PUC-Rio)
Elaine Faria (Federal University of Uberlandia)
Elizabeth Goldbarg (UFRN)
Eraldo Fernandes (Universidade Federal de Mato Grosso do Sul)
Eulanda Santos (Federal University of Amazonas)
Evandro Ruiz (Universidade de São Paulo)
Fabio Lobato (Universidade Federal do Oeste Pará)
Fabrício Enembreck (Pontifical Catholic University of Paraná - PUCPR)
Fabrício Silva (UFV)
Fábio Cozman (USP - Politécnica)
Felipe Meneguzzi (PUCRS)

Filipe Cordeiro (UFRPE)
Filipe Mutz (Universidade Federal do Espírito Santo)
Flavia Bernardini (Universidade Federal Fluminense)
Frederico G. Guimarães (UFMG)
Gabriel Ramos (Universidade do Vale do Rio dos Sinos)
Gabriel Simões (FEEVALE)
Geraldo Correa (Universidade do Estado de Minas Gerais)
Giancarlo Lucca (Universidade Federal do Rio Grande)
Gladston Moreira (Universidade Federal de Ouro Preto)
Gustavo Giménez-Lugo (UTFPR)
Heloisa Camargo (UFSCar)
Janaina Gomide (Universidade Federal do Rio de Janeiro)
José Everardo Bessa Maia (UECE - Universidade Estadual do Ceará)
José Luiz Pio (Universidade Federal do Amazonas)
Karin Komati (Ifes Campus Serra)
Karina Valdivia-Delgado (University of São Paulo)
Karla Figueiredo (UERJ)
Kate Revoredo (WU)
Li Weigang (University of Brasilia)
Lucas Kupssinskü (PUCRS)
Lucelene Lopes (USP/ICMC)
Marcela Ribeiro (Universidade Federal de São Carlos (UFSCar))
Marcelo Finger (USP/IME)
Marcos Quiles (Universidade Federal de São Paulo)
Marley M. B. R. Vellasco (PUC-Rio)
Martin More (PUCRS)
Márcio Basgalupp (UNIFESP)
Moacir Ponti (Universidade de São Paulo)
Murillo Carneiro (Federal University of Uberlândia)
Nathan Gavenski (PUCRS)
Newton Spolaôr (Universidade Estadual do Oeste do Paraná)
Nils Ever Murrugarra-Llerena (Weber State University)
Paulo Lilles Drews Jr (Universidade Federal do Rio Grande (FURG))
Péricles Miranda (UFRPE)
Rafael Giusti (Universidade Federal do Amazonas)
Rafael Rossi (iFood)
Raimundo Moura (Universidade Federal do Piaui)
Reinaldo Bianchi (Centro Universitario FEI)
Renato Tinos (USP)
Ricardo Araújo (Universidade Federal de Pelotas)
Ricardo Cerri (Universidade Federal de São Carlos)
Ricardo Marcacini (ICMC/USP)
Ricardo Prudêncio (Universidade Federal de Pernambuco)
Ricardo Rios (Universidade Federal da Bahia)
Rodrigo Coelho Barros (PUCRS)
Rodrigo Soares (UFRPE)
Ronaldo Prati (Universidade Federal do ABC)
Sandra Aluísio (USP/ICMC)
Sandra Venske (UNICENTRO - Universidade Estadual do Centro-Oeste)
Solange Rezende (USP/ICMC)
Tatiane Nogueira (Federal University of Bahia)

Thiago Covoes (Wildlife Studios)
Thiago Pardo (USP/ICMC)
Tiago de Melo (Universidade do Estado do Amazonas)
Valdivino Santiago Júnior (Instituto Nacional de Pesquisas Espaciais (INPE))
Valmir Macario (Universidade Federal Rural de Pernambuco)
Veronica Carvalho (Universidade Estadual Paulista (UNESP))
Vinicius Souza (Pontifícia Universidade Católica do Paraná)

SESSION CHAIRS

André Britto (Universidade Federal do Sergipe)

Arnaldo Candido Junior (UNESP)

Diego Furtado Silva (Universidade de São Paulo)

Filipe Cordeiro (UFRPE)

Heloisa Camargo (UFSCar)

Karina Valdivia-Delgado (University of São Paulo)

Péricles Miranda (UFRPE)

Rafael Bordini (PUC-RS)

Renato Tinos (USP)

Ricardo Cerri (Universidade Federal de São Carlos)

Ricardo Marcacini (ICMC/USP)

Solange Rezende (USP/ICMC)

Thiago Faleiros (UnB)