



Mario Brcic

mario.brcic@fer.hr

● WORK EXPERIENCE

07/2019 – CURRENT – Zagreb, Croatia

DATA SCIENCE & AI TEAM LEAD – HPC ARCHITECTURE AND APPLICATION RESEARCH CENTER @ FER

- Leading applied and scientific research into Edge AI and AI applications in (energy-efficient, exascale) High Performance Computing with focus on multimedia, automotive, and genomics.
- Projects: European Processor Initiative (H2020), EuroCC - National Competence Centres in the Framework of EuroHPC (H2020)

01/11/2019 – CURRENT – Zagreb, Croatia

ASSISTANT PROFESSOR – UNIVERSITY OF ZAGREB FACULTY OF ELECTRICAL ENGINEERING AND COMPUTING

- Research interests: AI (reinforcement learning) & combinatorial optimization with applications to supply-chain management, AI Safety, AI Ethics, digital twins, digital transformation, and everything related.
- Lecturing undergraduate and graduate courses: Operations Research, Algorithms and Data Structures, and Advanced Algorithms and Data Structures
- Mentoring undergraduate and graduate students.
- Participating researcher in "System for real-time monitoring and control of distributed processes, anomaly detection, early warning and forensic transaction analysis" (ESIF), joint project with Multicom d.o.o.

01/05/2015 – 31/10/2019 – Zagreb, Croatia

POSTDOCTORAL RESEARCHER – UNIVERSITY OF ZAGREB FACULTY OF ELECTRICAL ENGINEERING AND COMPUTING

- Research
- Lecturing undergraduate and graduate courses: Operations Research, Algorithms and Data Structures, and Advanced Algorithms and Data Structures

01/03/2009 – 01/05/2015 – Zagreb

TEACHING AND RESEARCH ASSISTANT – UNIVERSITY OF ZAGREB FACULTY OF ELECTRICAL ENGINEERING AND COMPUTING

- Research
- Teaching assistant on undergraduate and graduate courses: Operations Research, Algorithms and Data Structures, and Advanced Algorithms and Data Structures
- Projects: Optimizing and managing risks in information systems (MZOS)

Professional, scientific and technical activities | Unska 3, 10000, Zagreb, Croatia

● EDUCATION AND TRAINING

01/10/2003 – 07/07/2008 – Unska 3, Zagreb, Croatia

MASTER OF COMPUTER SCIENCE – University of Zagreb Faculty of Electrical Engineering and Computing

- Expert Systems, Graph Theory, Computer science, Software engineering, and Source code generation
- Developing and testing ideas

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- Approximate Dynamic Programming, Computer science, Operations Research, Mathematical modelling, and Simulation
- Developing and testing ideas
- Scientific writing

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● **PROJECTS**

2019 – CURRENT

Scheduling store deliveries with transport and warehouse workload balancing

Industrial project by major Croatian retailer Konzum d.d. The goals of this project are:

1. to formalize corporational processes and know-how
2. to develop optimization model
3. implement and deploy optimization software
4. disseminate and educate operational staff on applications of optimization in retail industry

Consultant with work on:

- collecting user requirements
- devising optimization model
- data processing
- implementing optimization software
- holding workshops on optimization approaches to industrial problems
- educating users on using the developed tool

2019 – CURRENT

Scipoeia

Startup based on Natural Language Processing (NLP) technologies. Scipoeia is decision, news and literature exploration support system for scientists. The goals are to offer:

1. recommender system for selecting publication outlets based on content and bibliometrical data
2. recommender system-driven newsfeed
3. rapid literature exploration guided by AI

Co-founder with work on:

- machine learning (NLP and recommender systems)
- data collection/processing/analysis
- backend development
- cloud computing, etc.

2020 – CURRENT

System for real-time monitoring and control of distributed processes, anomaly detection, early warning and forensic transaction analysis

Industrial project with MULTICOM d.o.o. co-funded by The European Structural and Investment Funds (ESIF).

Collaborator on project with work on:

- development of algorithms that detect anomalies in complex software systems.

2019 – CURRENT

European Processor Initiative (EPI), H2020

EU project for European independence in High Performance Computing (HPC) Processor Technologies. The aim is to design and implement a roadmap for a new family of low-power European processors for extreme scale computing, high-performance Big-Data and a range of emerging applications in HPC, AI, automotive industry, etc.

Collaborator on project with work on:

- combinatorial optimization (genome assembly in HPC)
- machine learning (computer vision/edge AI in automotive industry)
- software optimization for target computer architectures (Arm, RISC-V, massively parallel processor array...)

2020 – CURRENT

National Competence Centres in the Framework of EuroHPC (EuroCC), H2020

EU project for establishment and operation of National Competence Centres (NCC) in the area of high-performance computing (HPC) in participants' respective countries. These NCCs will coordinate activities in all HPC-related fields at the national level and serve as a contact point for customers from industry, science, (future) HPC experts, and the general public alike.

Collaborator on project in Croatian NCC with work on:

- competence mapping
- data collection
- data analysis

2009 – 2013

Optimizing and managing risks in information systems

Project supported by the Croatian Ministry of Science, Education and Sports.

Collaborator on project with work on:

- collaborative project scheduling with uncertainty and coordination.

2009

Norms in e-Business

Applied project supported by the Croatian Ministry of Science, Education and Sports.

Collaborator on project with work on:

- data collection
- data processing

● **DIGITAL SKILLS**

Project Development & Project Management

Programming

C, C++, Python | Programming languages known: Python (profficient), R, SQL

OR and AI

Python libraries (NumPy, Pandas, Keras, SciKit-Learn, TensorFlow, Matplotlib, Seaborn) | Data Science, Data Analytics, Data Visualization | Gurobi | MiniZinc | Operations Research | Machine Learning and Deep Learning frameworks: Tensorflow, Keras, PyTorch

Computing

Cloud platform: AWS, GCP etc. | High Performance Computing (HPC)

● **CONFERENCES AND SEMINARS**

2012 – Reykjavik, Iceland

AGI Summer School

2012 – Cadarache, France

Stochastic Optimization Summer School

2013 – Quiberon, France

Artificial Evolution Summer School

2014 – Lisbon, Portugal

Stochastic Programs with Integer Variables Spring School

2018 – Zagreb, Croatia

Data Science & Heterogenous Computing Winter School

2019 – Chania, Greece

AI for Multi-Agent Worlds Summer School

● **NETWORKS AND MEMBERSHIPS**

CURRENT

AGI society

CURRENT

CroAI

CURRENT

Croatian Society of Operational Research

CURRENT

IEEE

Co Chair of IEEE Computational Intelligence Society Croatia Chapter (2021-2022)

● **HOBBIES AND INTERESTS**

marathon running, road cycling

freediving

poetry, philosophy
