RESUME EUGEN ROŽIĆ

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EDUCATION

Certified teacher
Sept. 2019 - Nov. 2020

Faculty of Humanities and Social sciences (University of Zagreb) and **Agency for Vocational Education and Training**
Supplementary pedagogical-didactical education, 1 year programme (60 ECTS); completed the training period and passed the state professional exam

MSc in Physics
Oct. 2012 - Sep. 2017

University of Zagreb, Faculty of Science
Research-oriented study of physics, integrated 5 year programme (300 ECTS); graduated magna cum laude with thesis title: *On different thermodynamical pictures of ensembles of complex networks*, supervisor: Vinko Zlatić, PhD (vinko.zlatic@irb.hr)

MSc in ICT
Oct. 2011 - Jul. 2013

University of Zagreb, Faculty of Electrical Engineering and Computing
Study profile: Telecommunications and Informatics, 2 year programme (122 ECTS); graduated magna cum laude with thesis title: *A Dynamic and Elastic Publish-Subscribe Service for the Cloud Environment*, supervisor: Professor Ivana Podnar Žarko (ivana.podnar@fer.hr)

BSc in Computing
Oct. 2008 - Jul. 2011

University of Zagreb, Faculty of Electrical Engineering and Computing
Study module: Information Processing and Multimedia Technologies, 3 year programme (193 ECTS); two Faculty Council Special Recognitions "Josip Lončar", for top 1% performance in the first year and overall

Courses and certificates

Arduino certificate on Electronics and Physical Computing — Sept 2022

Principles of Functional Programming in Scala — Dec 2012
- Coursera, lecturer: Martin Odersky, EPFL

Practical aspects of construction of electronic devices — Aug 2010
- summer course at FER, 1 ECTS

Scholarships

City of Zagreb Scholarship — 2010/11 - 12/13 & 2014/15 - 16/17
Awarded to the best ≈100 3rd or higher year students from Zagreb until the end of their Master programmes

University of Zagreb Scholarship — 2013/14
Awarded for exceptional academic achievement in the previous year

National Foundation for the Support of Pupil and Student Standard Scholarship — 2009/10
Awarded for exceptional academic achievement in the previous year

WORK EXPERIENCE

Teacher of Physics
Sept. 2022 - current

X. gymnasium "Ivan Supek", Zagreb
Teaching physics (with practical exercises) for science-oriented and general gymnasium programmes.

Research Assistant
Dec. 2021 - Jun. 2022

Ruđer Bošković Institute, Centre for Informatics and Computing
Research and development of algorithms for simulation of physical systems in the context of high-performance computing (HPC)

Teacher of Technical Subjects
Nov. 2019 - Dec. 2021

Aeronautical Technical School Rudolf Perešin, Velika Gorica
Teaching and practical exercises in various subjects from the area of electrical engineering and computing

Teacher of Mathematics
Sept. 2019 - Oct. 2019

Elementary schools "Oton Iveković" and **"Trnjanska"**, Zagreb
Teaching 5^{th} grade mathematics

Postgraduate Researcher
Feb. 2018 - Jun. 2019

University College London, Institute for the Physics of Living Systems
Investigating amyloid aggregation and other amyloid-related processes using coarse-grained modelling and computer simulations.

Postgraduate Teaching Assistant
Sept. 2018 - Jan. 2019

University College London, Department of Physics and Astronomy
Teaching and guiding students in conducting of experiments on the first-year physics laboratory course (PHAS0007: Practical Skills 1C).

Research Intern
Jul. 2012 - Sept. 2012

Digital Enterprise Research Institute (at NUI Galway, Ireland)
Implementing HDT RDF compression (*www.rdfhdt.org*) over hard-drive using noSQL databases (JDBM3, BerkeleyDB) in Java.

Student Teaching Assistant
Sept. 2009 - Jan. 2011

University of Zagreb, Faculty of Electrical Engineering and Computing
Marking students' homework and assisting with teaching on courses *Mathematics 1*, *Mathematics 2* and *Mathematics 3-C*.

VOLUNTEERING EXPERIENCE

Team Leader and Juror
Feb. 2019 - Jul. 2019

32^{nd} International Young Physicists' Tournament (IYPT), Warsaw
Co-lead Croatia's team of five high-school students in solving practical physics problems (theory and experiment) and served as a juror for the competition.

Organizing Committee Member
Oct. 2013 - Aug. 2015

30^{th} International Conference of Physics Students (ICPS), Zagreb
Organised accommodation for over 300 participants, invited 3 international speakers, arranged a venue for more than 90 lectures and managed 15 volunteers.

COMPUTER SKILLS

Languages	Advanced: **Java**, **Python**, **C** Basic: **C++**; **bash**; HTML, CSS, JS, PHP
Operating systems	**Linux**, Windows, Android Everyday and moderately advanced user of all three operating systems with at least some experience in software development for each of them.
Programs / Tools	**LaTeX, Eclipse**, Microsoft Office, ...

MISCELLANEOUS

Former interests and areas of research	metaheuristics, machine learning; statistical and mathematical physics, complex systems and networks, biophysics; quantum foundations and philosophy of physics, foundations and philosophy of mathematics
Current interests and areas of research	bioinformatics, HPC educational policy and practice; political philosophy and theory
Hobbies	rock climbing and mountaineering, horse riding; playing drums, singing (choir); poker (live tournaments)
Memberships	Croatian Physical Society, University Mountaineering Society "Velebit"
Languages	**Croatian** · Native **English** · Proficient (IELTS 8.5/9) **German** · Elementary (A1/A2)
Driving licence	B category

APPENDIX A - NOTABLE PROJECTS

Python, C/C++

Multi-scale MD/MC simulations of coarse-grained models of amiloidogenic proteins with LAMMPS

The subject of my postgraduate research at UCL in London. The result is a *Python library* that enables one to easily define coarse-grained models of rod-like structures with multiple states, and various *Python programs* in the function of performing hybrid MD/MC simulations with LAMMPS on high-performance distributed systems, as well as some additions and contributions to the LAMMPS code itself in C/C++.

Keil MDK, Python

A Proton Precession Magnetometer

A 3 person project for the "Advanced Physics Lab 2" course whose aim was to construct a toroidal PPM from scratch. I assisted in making a custom electronic circuit on a PCB, programmed an STM32F072RB MCU on a Discovery board and made a driver program in Python to communicate with the MCU over USB.

Java

A Dynamic and Elastic Publish-Subscribe Service for the Cloud Environment

Project for the Master thesis. A highly parallel, multi-threaded, multi-process publish/subscribe over TCP/IP system designed for high load and written in Java (~10,000 LoC). It's code is the base of the CUPUS module of the OpenIoT project (*github.com/OpenIotOrg*).

Java, Android

Connecting Diagnostic Devices and Mobile Devices with Android Platform via Bluetooth

Project for the Bachelor thesis. A multi-threaded Android application for communication with and use of various personal medical devices, e.g. spirometers, over Bluetooth; part of a collaboration project with the industry.

Java

A System for Electronic Voting in Local Elections

Project for the "Software Design" course. A client/server system with communication over TCP/IP and voter and administrator roles, written in Java with MVC approach (~3500 LoC). The client has a nontrivial Swing GUI and the server uses an SQL database.

Java, OpenCV

Tracking moving objects with a movable camera

A 5 person project for an undergraduate course with me as project leader. We used OpenCV (Java wrapper) to recognize objects on images and follow them with a 360° network dome camera where FIR and Kalman filters were experimented with for movement prediction.

Java

A P2P application for backing-up data on a local network

A 4 person project for an undergraduate course. Written in Java (~5000 LoC) using MVC approach. Rich GUI interface, TCP & UDP P2P encrypted communication and database use with Hibernate.

APPENDIX B - PUBLICATIONS

[1] **Recommendation of YouTube Videos**, M. Brbić, E. Rožić, I. Podnar Žarko; Proceedings of the 35th MIPRO International Convention, 2012
- won the best student paper award

[2] **The Edges-as-Particles Thermodynamical Picture Of Networks**, E. Rožić, V. Zlatić; in preparation

[3] **A hybrid MD/MC approach for coarse-grained multi-state molecules: The case of amyloids**, E. Rožić, A. Šarić; in preparation

[4] **A coarse-grained model of amyloidogenic proteins for MD simulations**, E. Rožić, A. Šarić; in preparation