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 $\approx$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 Electrical Engineering
Sept. 2024 - Sept. 2025

Aeronautical Technical School Rudolf Perešin, Velika Gorica
Teaching and practical exercises in the basics of electrical engineering.

Teacher of Physics
Sept. 2022 - Sept. 2024

X. gymnasium "Ivan Supek", Zagreb
Teaching physics (with practical exercises) for science-oriented and general gymnasium programmes, some of it in English (for Cambridge IGCSE).

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 Electrical Engineering & Computing
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 5th 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 (PHAS007: 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.

VOLUNTEERING EXPERIENCE

Team Leader and Juror
July 2023
July 2019

36th International Young Physicists' Tournament (IYPT), Pakistan
32nd International Young Physicists' Tournament (IYPT), Poland
Co-lead Croatia's high-school students team in solving practical physics problems (theory and experiment) and served as a juror for the competition.

Organizing Committee Member
Oct. 2013 - Aug. 2015

30th 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, HPC; 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	educational policy and practice; political philosophy and theory
Hobbies (past & present)	hiking & rock climbing, karting, horse riding, sailing; 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)
Permits	Driving licence - B category, Boat skipper - B category (Adriatic Sea), Hunter - firearm permit

APPENDIX A - NOTABLE PROJECTS

Python, C/C++

Multi-scale MD/MC simulations of coarse-grained models of amiloido-genic 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* for performing hybrid MD/MC simulations with LAMMPS on high-performance distributed systems, as well as 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