# Dr. Nenad Balaneskovic

### **Data Scientist**

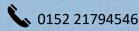
Specialization: Theoretical Physics (Quantum Computing) Born on May 14, 1984, in Nis (Serbia), marital status: married



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Github-Profile LinkedIn-Profile



Physicist with an analytical mind and a sense of humor. I develop robust, clever solutions between code, data, and reality: responsibly, efficiently, transparently, and with team spirit. I solve challenges in a structured and empathetic manner before the tea gets cold.

### **Professional career**

- January 1, 2022 January 31, 2025: Optical Engineer, Nexonar (Atlas Copco Holding GmbH), Rüsselsheim/Germany "Efficient project team leadership in challenging phases"
  - Data analysis and data processing within the scope of various industrial data science projects (automotive, aviation, and medical industries).
  - Development and testing of AI and ML algorithms for motion capture (image and signal processing, process automation, and quality control) of industrial processes, data mining, and the design, implementation, and analysis of experiments with infrared cameras and sensors.
  - Design of methods for data analysis, machine learning, and data processing using supervised, unsupervised, and reinforcement learning algorithms for the evaluation of time series and images.
  - MLOps-driven CI/CD testing, training, and monitoring of deployed machine learning capabilities for the purpose of timely algorithmic adaptation to constantly changing data inputs and external business requirements (timeoptimized project management and team leadership).

# **Education and training**

- 2016: Doctorate in Theoretical Physics, Technical University of Darmstadt, Karolinenplatz 5, 64289 Darmstadt, Germany
  - · Design of quantum hard drives for efficient information storage.
  - Graph theory-based design and efficiency testing of paradigms and compilers for quantum logic programming and quantum security protocols.
- Design of quantum mechanical algorithms and their application in quantum computers, including suitable mathematical and physical criteria for efficient data storage and the design of a multi-layer quantum hard disk structure.
- 2011: Master of Science in Theoretical Physics, Technical University of Darmstadt, Karolinenplatz 5, 64289 Darmstadt, Germany
  - Theoretical description of the inflationary phase in the early evolution of the universe using the functional renormalization group (FRG).

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## **Technical skills**

Python, R, C++, C#		MLOps, CI/CD		KNIME, PowerBl	
JavaScript, MATLAB	000	Project managemen	t 000	SQL, MongoDB	000
ML & Al Algorithms		Organizing, Planning		GCP, AWS, Azure	

### **Professional career**

March 1, 2017 – December 31, 2021: **Technology Consultant**, soft2tec GmbH, Rüsselsheim/Germany
"Time and process optimization in industrial consulting."

- Data analysis and processing in automotive, aerospace, and medical technology projects.
- Requirements management, development, and validation of calibration procedures at soft2tec.
- Establishment of data analysis infrastructure for production and testing in the laboratory.

October 1, 2011 – March 31, 2016: **Research assistant for the State of Hesse**, Institute for Applied Physics (Darmstadt)

- Research, team leadership, and introduction of innovative quantum computer technology.
- Graph theory-based design and efficiency testing of paradigms and compilers for quantum logic programming and quantum security protocols.

I will provide a detailed resume upon request.

# **Education and training**

 2008: Bachelor of Science in Theoretical Physics, Technical University of Darmstadt, Karolinenplatz 5, 64289 Darmstadt, Germany

 Theoretical description of the early universe after the Big Bang using modern concepts of quantum field theory (QFT).

#### **Prizes**

- June 2010, TU Darmstadt: Teaching Award from the Gerhard Herzberg Gesellschaft
- May 2013, TU Darmstadt: Certificate in University Teaching from the HDA (Center for University Teaching)

# **Additional qualifications**

- October 1, 2005 September 30, 2010, TU
   Darmstadt: Internship in the field of
   measurement technology (solid state physics,
   polymer physics, nuclear physics, astronomy,
   optics)
- October 1, 2008 September 30, 2010, TU Darmstadt: "Business, Corporate, and Organization Management" (M.Sc. courses)

### **Personal Points**

#### Languages:

• German: C2, English: C2, Serbocroatian: native language, Russian: A2

#### **Scholarships and memberships:**

- 1) Gemeinnützige Hertie Stiftung: 2002 2005,
- 2) Studienstiftung des deutschen Volkes: 2005 2007,
- 3) Deutsche Physikalische Gesellschaft (DPG): 2005 2017,
- 4) Gerhard Herzberg Gesellschaft: 2010 2023

#### **Publications:**

- 1) Nenad Balaneskovic, »Random Unitary Operations and QuantumDarwinism Environment as an efficient quantum memory«, Scolar'sPress, ISBN 978-3-659-83733-3.
- 2) Nenad Balaneskovic, »Random unitary evolution model of quantumDarwinism with pure decoherence«, Eur. Phys. J. D 69, 232 (2015).
- 3) Nenad Balaneskovic / Marc Mendler, » Dissipation, dephasing and quantum Darwinism in qubit systems with random unitary interactions «, Eur. Phys. J. D 70, 177 (2016).

#### Leisure time:

Finance, Chess, Fitness, Literature (E. A. Poe, A. C. Doyle, H. G. Wells, U. Eco), Retro & Game Programming

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## **Personal skills**

Responsible		Problem solver / tinkerer	
Teamplayer	000	Simplifying complex topics	000
Empathetic	000	Cooperative, self-critical	000