

A scientist and an entrepreneur, holding a PhD, DSc degree (Dr hab.) in the field of Engineering and Technology in the discipline of Information and Communication Technology, a university professor. He manages several domestic and international Research and Development projects. The architect of numerous technological solutions in business, building on his 20-year interdisciplinary experience and highly specialized IT expertise, also regarding digital transformation in social sciences and medical sciences.

Scientific interests focus on the Computational Intelligence, Machine Learning, optimization techniques, Image Processing, Internet of Things, cryptography and blockchain technology. A laureate of “TOP 500 Innovators” project of the Polish Ministry of Science and Higher Education, offering the Internship and Training Program at the University of California in Berkeley, the USA; a laureate of numerous scholarships and scientific achievement awards. Post-doctoral internships in the Knowledge Engineering and Discovery Research Institute in Auckland, New Zealand (research connected with a practical application of third generation artificial neural networks) and the University of Nevada, Las Vegas (research concerning the Internet of Things and the Data Analysis.)

An author or co-author of more than 120 publications in scientific journals and conference materials, author of an academic textbook, scientific editor, reviewer, chairman of scientific conference sessions.

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## Professional Experience

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### **TrichoLAB, Warsaw, Poland**

#### *Senior Solution Architect*

Jan 2021 - Present

Leading a group of 8 researchers and engineers to develop a system for effective hair transplant (procedure planning and surgical assistance). Co-investigator funded by the National Centre for Research & Development (NCRD) of Poland and in total responsible for a grant worth USD 2.09M (PLN 8.44M).

Technologies used: C++, Nvidia, DirectX, OpenCV, Boost C++ Libraries, GTSAM, numerical and statistical methods, Arduino

#### *Principal Software Engineer*

Sep 2018 - Dec 2020

Research and software development of algorithms focused on image analysis: hair-to-hair matching, 3D reconstruction, serial 3D reconstruction.

Technologies used: C++, OpenCV, Boost C++ Libraries, GTSAM, numerical and statistical methods

**SWPS University of Social Sciences and Humanities, Warsaw, Poland***Member of the University Senate*

April 2020 - Nov 2022

Founded the structure of the new Computer Science Department in the University organization. Elaborated the successful application to the Polish Accreditation Committee. Responsible for recruitment of the teaching staff, syllabuses, programme, innovative solutions for interdisciplinary research combined with practical applications.

**Nethone, Warsaw, Poland***R&D Director*

Jan 2018 - Dec 2020

Leading a group of 20 researchers and engineers to develop an autonomous AI-based cybersecurity solution to protect institutions against account takeover attacks (ATO). Principal investigator funded by the National Centre for Research & Development (NCRD) of Poland and in total responsible for a grant worth USD 2.55M (PLN 10.26M).

Technologies used: Python, pandas, numpy, scikit-learn, SQL, PostgreSQL, statistical methods

**Seventh, Washington, D.C., United States***CTO*

Dec 2018 - Oct 2019

Building a service-oriented architecture to meet the long-term vision of implementation of an IP marketplace. Responsible for every technical aspect of the company's problem/solution and day-to-day development. Researching and implementing AI features that improve the quality of the system and product to meet the users' needs.

Technologies used: Python, pandas, numpy, scikit-learn, Cloud (Amazon Web Services)

**Golem Factory, Warsaw, Poland***Senior Software Engineer | R&D*

Nov 2016 - Jan 2018

Research on atomic swap algorithms in application to the exchange of computing power into tokens and vice versa; development of the main application for the macOS; system migration from Qt4 to Qt5.

Technologies used: Python, Qt, Ruby

**Nventi, Berkeley, California, United States***Scientist and Software Engineer Consultant*

Nov 2015 - Mar 2016

The main consultant, responsible for preparation of patent database architecture scheme. The aim of the project: to identify uncovered areas of science and technology.

Technologies used: Java, relational database

**Warsaw University of Technology, Poland (selected activities)***Contractor at Institute of Electronic Systems | Data Science & AI*

Oct 2016 - Dec 2018

1. The grant recipient from the NCRD in the amount of USD 1.84M (PLN 7.41M), the principal engineer to develop methods of criminal event prediction based on time-series data analysis.  
Technologies used: Python, pandas, Keras, SPSS, R
2. The grant recipient from the NCRD in the amount of USD 1.67M (PLN 6.72M) for building diagnostic hardware-software system for video concentration device, the principal engineer focused on the implementation of the diagnostic (web console for uBoot), configuration, and FSBL update interfaces on the processor with MMC based on Free RTOS.  
Technologies used: C, Free RTOS, LwIP

3. Displacing clunky, useless algorithms used for the detection of micro defects in aviation vehicles developed by the Polish Academy of Sciences' Institute of Fluid-Flow Machinery: by linearizing the computational complexity turning them into bespoke, scalable algorithms used in the industry today.  
Technologies used: MATLAB, C, Altera (Intel) FPGA EP2C70 Cyclone II, Quartus
4. A data scientist in cooperation with Institute of Meteorology and Water Management in Katowice, Poland, responsible for modeling and optimization for further implementation of numerical meteorological methodologies for forecasts of rainfalls.  
Technologies used: C, R, numerical and statistical methods (including fast Fourier transform)
5. A data scientist in cooperation with Maria Skłodowska-Curie Institute of Oncology in Warsaw, Poland, responsible for analysis and development of algorithms for the osteosarcoma database. A characteristic feature of this work was an application of a data mining discretization method combined with typical statistical method. The goal: to determine the cut-off parameter of Topoisomerase II-alpha.  
Technologies used: SPSS, C++.

### Ministry of Health, Warsaw, Poland

Business Analyst | IT Consultant

May 2005 - Mar 2006

The main consultant, responsible for providing an optimized database schema design and optimizing core data flows for one of the biggest registers of this kind in Poland. The system is used for central management of personal data and employment records of over 300 000 nurses in Poland.

### AIG, Warsaw, Poland

Business Analyst | Database modeling and optimization

Oct 2002 - Feb 2003

The contractor, responsible for developing intelligent software for validation and redesign the database of AIG clients. The technology developed was based on a specific pattern matching algorithm.

Technologies used: CORBA, SQL, Borland C++.

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## Education

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### Military University of Technology

February 2020

Doctor of Science (Habilitation), Information and Communication Technology

### Auckland University of Technology, Knowledge Engineering and Discovery Research Institute

Dec 2015 - Sep 2016

Post-doctoral internship – research connected with a practical application of third generation artificial neural networks

### University of California, Berkeley, Haas School of Business

Sep 2015 - Nov 2015

Research in Business / Commerce – Internship and Training Program “TOP 500 Innovators”

### University of Nevada, Las Vegas, Department of Electrical and Computer Engineering

Dec 2009 - Mar 2010

Post-doctoral internship – research concerning the Internet of Things and the Data Analysis

### Warsaw University of Technology

Nov 2002 - Jun 2007

Doctor of Philosophy (Ph.D.), Computer Engineering, Specialization: Logic Synthesis

### Warsaw University of Technology

Oct 1996 - Jun 2002

M.Sc. Eng., Applied Mathematics, Specialization: Mathematical Methods in Finances and Insurances

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## Selected skills and technologies

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### Hard skills

- design, computational complexity analysis, and optimization of algorithms
- data analysis: machine learning, data mining, time series analysis, statistics
- 3D reconstruction based on pattern recognition
- designing cryptographic algorithms
- programming in object-oriented and low-level languages, including: C ++ (Boost library), Python (data analysis libraries), Java, Groovy, C, VHDL
- Test Driven Development
- Git version control systems (GitHub, GitLab, Bitbucket platforms)
- non-relational and relational databases: MongoDB, MySQL, PostgreSQL
- agile approaches to project management / Scrum methodology
- programming and design of embedded systems: Intel 8051/8052, ARM, DSP / FFT, Altera Quartus, FPGA

### Soft skills

- public speaking
- negotiations
- excellent time management
- high personal culture
- communicativeness
- self-development drive and willingness to learn
- persuasive skills and ability to motivate employees
- effective team management
- innovation management
- good work organization (including remote work)
- task delegation and effective enforcement

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## Additional information

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### Foreign Languages

English – fluent

### Interests

photography, trekking

### Sports

jogging, soccer