Curriculum vitae

PERSONAL INFORMATION:

NAME	Marija Ivanović (maiden Petrović)
BIRTH:	26.01.1985, Serbia
ADDRESS:	Prve pruge 37, Belgrade
MOBILE PHONE:	062466736
EMAIL:	marijap@vin.bg.ac.rs
WEB	https://pstar.vinca.rs/marija.php

WORK EXPERIENCE:

2015 – present: **Research Associate (Research Assistant Professor)**
Vinča Institute of Nuclear Sciences, Laboratory for Atomic Physics

Duties: responsible for research in biomedical signal processing and artificial intelligence in medicine; cooperation with medical doctors in preparation and execution of pilot clinical studies; project tasks coordination; preparation of grant proposals; postgraduate student supervision

May 2019
October, May 2018 and Sep 2017: **Visiting researcher**
University of Brescia, Brescia, Italy
Department of Information Engineering

Duties: Extraction and development of features for defibrillation outcome prediction (hand crafted and deep learning (in Python, Keras, Matlab)); design, analysis, evaluation and comparison of ML/DL models (in Weka, ECST, Python, Keras)

Nov 2017 – Mar 2018: **Visiting researcher**
Friedrich-Alexander University, Erlangen-Nuremberg
Digital Sports Group, Pattern Recognition Lab

Duties: design, analysis, evaluation and comparison of ML/DL models (in Weka, ECST, Python, Keras); involvement in Biomedical signal analysis lectures

2010 – 2015: **Research Assistant (PhD student)**
Vinča Institute of Nuclear Sciences, Laboratory for Atomic Physics

Duties: development of fiber-optical sensors for measurement of respiratory and cardiovascular pulsations: sensor characterisation, development and testing of interrogation schemes, data acquisition and synchronisation of opto-electronic interrogator with ECG and phonocardiogram (in Labview); measurements on healthy volunteers; biomedical signal processing (in Matlab); numerical modelling of fiber-grating sensors (in Comsol); one month training for fabrication and characterization of fiber-optical gratings at Aston Institute of Photonic Technologies, Birmingham, United Kingdom

SKILLS:

Programming: Matlab, Labview, Weka, Python (Keras, Tensorflow, NumPy, Pandas, Matplotlib, Seaborn, Scikit-Learn), R, SQL, Azure, MS Office, Corel Draw, Origin, LaTeX, Jupyter notebook/lab

Artificial Intelligence	Machine Learning, Deep Learning, Feature Engineering, Data Exploration and analysis, Visualization
Languages:	**Serbian** – Native speaker **English** – Fluent **German** – B2

EDUCATION:

2014:	**Ph.D. degree in Fiber-optical sensors and signal processing for applications in medical diagnostics** Department of Biomedical Engineering and Technology, University of Belgrade average grade: 10.00 (out of 10) Ph.D. thesis: An optical fiber-grating device for measuring cardiovascular and respiratory pulsations
2009:	**M.Sc. degree in Nuclear and clinical medical devices and their applications** Department of Biomedical and Environmental Engineering, School of Electrical Engineering, University of Belgrade average grade: 9.83 (out of 10) M.Sc. thesis: Determination of the atomic composition of tissues based on CT numbers
2008:	**B.Sc. degree in Nuclear and clinical medical devices and their applications** Department of Biomedical and Environmental Engineering, School of Electrical Engineering, University of Belgrade average grade: 9.64 (out of 10) B.Sc. thesis: Simulation of radiographic imaging

PROJECTS

2022 – 2025:	Multi-SENSor SysteM and ARTificial intelligence in service of heart failure diagnosis – SensSmar, The Program IDEAS 7754338, Science Fund Republic of Serbia
2022 – 2024:	Differential Lung Impedance in Heart Failure Estimation - D-LIFE, COLLABORATIVE GRANT SCHEME Program, Innovation fund Republic of Serbia
2021 – 2022:	Baby Bip – mobile fetal well-being monitor ID=2023, Matching Grants Program, Innovation fund Republic of Serbia
2020 – 2022:	KardioPal diagnostics ID=50258, COLLABORATIVE GRANT SCHEME Program, Innovation fund Republic of Serbia
2018 – 2019:	KardioPal - wireless diagnostic platform with personal handheld ECG device ID=1159, Mini grants program, Innovation fund Republic of Serbia
2015 – 2019:	H2020 MSCA RISE 691051 – Capturing and quantitative analysis of multi-scale multi-channel diagnostic data – CARDIALLY, European Commission
2013 – 2016:	COST MP1205 - Advances in Optofluidics: Integration of Optical Control and Photonics with Microfluidics
2013 – 2016:	COST BM 1205 - European Network for Skin Cancer and Detection using Laser Imaging
2011 – 2019:	III 45010 - Photonics of micro-and nanostructured materials, Ministry of Education and Science of Serbia

2010 – 2011:	P 141034 - Physics of Complex Phenomena in Plasmas, Condensed Matter Physics and Nonlinear Optics, Ministry of Science and Technology of Serbia

PERSONAL GRANTS AND AWARDS:

2009:	Award for the best graduate student at the Department of Biomedical engineering
2007/2008:	Belgrade scholarship for the best final-year students
2004-2008:	Student scholarship of Ministry of Education of Serbia

Certificates:

2023:	Machine Learning Specialization, a 3-course online specialization on Coursera.org authorized by DeepLearning.AI and Stanford University
2022:	Google Cloud Big Data and Machine Learning Fundamentals, a course on Coursera.org authorized by Google Cloud
2022:	Create Machine Learning Models in Microsoft Azure, a course on Coursera.org authorized by Microsoft
2022:	Complete Tensorflow 2 and Keras Deep Learning Bootcamp, an online course on Udemy
2022:	Data Analysis with R Programming, a course on Coursera.org authorized by Google
2022:	Prepare Data for Exploration, a course on Coursera.org authorized by Google
2022:	Process Data from Dirty to Clean, a course on Coursera.org authorized by Google
2020:	Python for Data Science and Machine Learning Bootcamp, an online course on Udemy
2019:	Python Beyond the Basics – Object-Oriented Programming, an online course on Udemy
2019:	Python OOP: Four pillars of OOP in Python 3 for beginners, an online course on Udemy
2019:	Complete Python programming from basics to advance level, an online course on Udemy
2019:	Digital signal processing from ground up in Python on Udemy
2018:	Data Science in Stratified Healthcare and Precision Medicne, a course on Coursera.org authorized by The University of Edinburgh
2018:	Deep Learning Specialization, a 5-course online specialization on Coursera.org authorized by Stanford University, USA
2018:	SQL for Data Science, a course on Coursera.org authorized by the University of California, Davis
2018:	Machine Learning Course on Coursera.org authorized by Stanford University, USA
2017:	Machine Learning Specialization, a 4-course online specialization on Coursera.org authorized by the University of Washington, USA
2017:	Python Programming: A concise Introduction course, an online course specialized on Coursera.org authorized by Wesleyan University, USA

MENTORSHIP:

2018 - :	Supervisor of 2 Phd students
2014:	Supervisor of a IAESTE summer student from Great Britain during the two-month practice at Vinča Institute of Nuclear Sciences, Belgrade, Serbia
2014:	Supervisor of a undergraduate student during the three-month student practice at Vinča Institute of Nuclear Sciences, Belgrade, Serbia
2012-2013:	Co-supervisor of 2 M.Sc. students and 1 B.Sc. student for characterization of fiber-optical grating sensors

PROFFESIONAL INTERESTS:

Machine and deep learning (artificial intelligence)
Data analysis
Medical diagnostic devices
Biomedical signal processing
Electrophysiological measurements

PERSONAL INTERESTS:

Sports:	Taekwondo (Member of the B national taekwondo team (2001-2007)) Jazz ballet Jogging

PATENTS:

1. B. Bojović, M. Vukčević, J. Petrović, M. Petrović, I. Ilić, A. Daničić, T. Allsop and Lj. Hadžievski, „Apparatus and method for monitoring respiratory volumes and synchronization of the triggering in mechanical ventilation by measuring the local curvature of the torso surface", Patent application number PCT/RS2013/000016, WO 2014035272 A1

SELECTED PUBLICATIONS:

- V. Domazetoski, G. Gligoric, M. Marinkovic, A. Shvilkin, J. Krsic, Lj. Kocarev, and M. D. Ivanovic, „The Influence of atrial flutter in automated detection of atrial arrhythmias – are we ready to go into clinical practice?", *Comput. Meth. Prog. Bio.*, vol. 221, 106901, 2022
- S. Benini, M. D. Ivanovic, M. Savardi, J. Krsic, Lj. Hadzievski and F. Baronio, "ECG waveform dataset for predicting defibrillation outcome in out-of-hospital cardiac arrested patients", *Data Brief*, vol. 34, 106635, 2021
- M. D. Ivanovic, J. Hannink, M. Ring, F. Baronio, V. Vukcevic, Lj. Hadzievski and B. Eskofier, „Predicting defibrillation success in out-of-hospital cardiac arrested patients: Moving beyong feature design", *Artif. Intell. Med.*, vol. 110, 101963, 2020
- M. Ivanovic, A. Mancic, C. Hermann-Avigliano, Lj. Hadzievski and A. Maluckov, „Deep learning-based classification of high intensity light patterns in photorefractive crystals", *J. Opt.*, vol. 22, 035504, 2020
- M. D. Ivanovic, M. Ring, F. Baronio, S. Calza, V. Vukcevic, Lj. Hadzievski, A. Maluckov and B. Eskofier, „ECG derived feature combination versus single feature in predicting defibrillation

success in out-of-hospital cardiac arrested patients," *Biomed Phys Eng Express*, vol. 5, 015012, 2019

- M. D. Ivanovic, V. Atanasoski, A. Shvilkin, Lj. Hadzievski and A. Maluckov, "Deep learning approach for highly specific atrial fibrillation and flutter detection based on RR intervals," *41th Annual International IEEE EMBS Conference*, Conference proceedings, pp. 1780-1783, Berlin, Germany, Jun 2019
- V. Atanasoski, M. D. Ivanovic, M. Marinkovic, G. Gligoric, B. Bojovic, A. V. Shvilkin and J. Petrovic, "Unsupervised classification of premature ventricular contractions based on RR interval and heartbeat morphology", *NEUREL 2018*, 14th Symposium on Neural Networks and Applications, 18328256, Belgrade, Serbia, Nov. 2018