



NENAD FILIPPOVIĆ

Basic information. Prof. Nenad Filipović was born on 23 February 1970 in Kragujevac where he attended primary school and First grammar school of Kragujevac. He earned his bachelor's degree in 1994 and his PhD degree in 1999 from the Faculty of Mechanical Engineering, University of Kragujevac (now Faculty of Engineering).

Positions. Faculty of Mechanical Engineering in Kragujevac (appointments: assistant professor (2001-2005); associate professor (2005-2011); full professor (2010-currently, Department of Applied Mechanics and Automatic Control). University of Kragujevac: Vice-Rector for International Cooperation (2012-2015), Rector (2018-currently).

Educational activities. Prof. Filipović initiated the establishment of 4 Master Degree Programmes at the University of Kragujevac (Bioengineering, Information Technologies, Development of Computer Games, and Development of Artificial Intelligence) as well as the Department of

Software Engineering at the Faculty of Engineering. As the Rector of the University of Kragujevac, he has been credited for the establishment of the Institute for information technologies in 2019.

He has supervised 10 PhD theses and a number of diploma and master's theses.

Professional improvements. Vienna University of Technology 2001; Harvard School of Public Health, USA, 2003-2010 (several months a year); Steinbeis, Stuttgart, 2006-2007 (Humboldt Scholarship)

Scientific work. Main fields: Applied Mechanics and Biomechanics, Applied Informatics and Computer Engineering, Bioengineering. Significant scientific contribution in the area of the development of numerical methods and their application to various problems in the field of medical sciences and bioengineering, and particularly in the analysis of cardiovascular diseases (plaque and aneurysms development, stent deployment, etc.).

A list of five most significant scientific papers:

1.N. Filipovic, D. Nikolic, V. Isailovic, M. Milosevic, V. Geroski, G. Karanasiou, M. Fawdry, A. Flanagan, D. Fotiadis and M. Kojic: In vitro and in silico testing of partially and fully bioresorbable vascular scaffold, in print: *Journal of Biomechanics*, 2020.

2. Filipovic Nenad D, Gibney Barry C, Kojic Milos R, Nikolic Dalibor, Isailovic Velibor, Ysasi Alexandra, Konerding Moritz A, Mentzer Steven J, Tsuda Akira, Mapping cyclic stretch in the postpneumectomy murine lung, *Journal of Applied Physiology*, Vol.115, No.9, pp 1370-1378, ISSN -, Doi 10.1152/jappphysiol.00635.2013, 2013

3. T Djukic, I Saveljic, N Filipovic, Numerical modeling of the motion of otoconia particles in the patient-specific semicircular canal, *Computational Particle Mechanics*, Vol.6, No.4, p.p. 767-780, ISSN 0010-4825, Doi 10.1007/s40571-019-00260-1, 2019.

4. AM Vukicevic, V Milic, A Zabotti, A Hocevar, O Di Lucia, G Filippou, **N Filipovic**, Radiomics-based assessment of Primary Sjogren's Syndrome from salivary gland ultrasonography images, IEEE journal of biomedical and health informatics, Vol.24, No.3, p.p. 835-843, ISSN 2168-2194, Doi 10.1109/JBHI.2019.2923773, 2019.

5. T Sustersic, L Liverani, AR Boccaccini, S Savic, A Janicijevic, **N Filipovic** Numerical simulation of electrospinning process in commercial and in-house software PAK, Materials Research Express, Vol. 6, No.2, pp-, ISSN 2053-1591, Doi: 10.1088/2053-1591/aaeb08, 2019

Complete list of published work:

<https://scholar.google.com/citations?user=aRNUD08AAAAJ&hl=sr&oi=ao>

Citation and Hirsch index. According to the Scopus database: citations 1732, $h = 20$; According to the *Google Scholar*: citations 3934, $h = 30$.

New laboratories. Prof. Filipović is one of the founders of the Centre for Bioengineering at the Faculty of Engineering. The Centre now includes the Laboratory for stent design and testing according to ISO 25539-2 and Laboratory for electrospinning. During the COVID-19 pandemic, medical ventilators were also designed in these laboratories.

Engineering achievements. Prof. Filipović is the author of a number of software packages based on the finite element method and discrete methods. He is one of the main authors of the PAK software package; At the beginning of his career, the scope of his work was mainly in the field of fluid mechanics and solid-fluid interaction, and now his research interests are predominantly in the field of bioengineering.

RDI projects. Since 2003, prof. Filipović has been participating in numerous national and international RDI projects, both as a primary investigator/coordinator and co-investigator. Some of the significant results of these projects have been applied in clinical settings (e.g. the model of atherosclerosis). He has been the coordinator of five and participant in nine projects of national importance and leader of the Serbian team in seven bilateral projects, funded by the Ministry of Education, Science and Technological Development of Serbia. He has also been the the coordinator of six international projects (Horizon2020, SCOPES, CEI, UNDP) and a leader of project teams in Serbia in a large number of international projects. (Horizon2020, FP7, FP6).

National projects of significance - coordinator:

1. Development of software and hardware in the field of bioengineering and their application in clinical practice TP-12007 (2008-2010). Financing: Ministry of Education, Science and Technological Development of Serbia
2. Application of biomedical engineering in preclinical and clinical practice, ИИИ41007, (2011-2020). Financing: Ministry of Education, Science and Technological Development of Serbia

International projects of significance - coordinator:

1. Increasing scientific, technological and innovation capacity of Serbia as a Widening country in the domain of multiscale modelling and medical informatics in biomedical engineering (SGABU) (2020-2023). Financing: Horizon 2020
2. In Silico trials for drug tracing the effects of sarcomeric protein mutations leading to familial cardiomyopathy (SilicoFCM) (2018-2022). Financing: Horizon 2020
3. Production of medical ventilators by using 3D printers and lasers, with lower production cost and in shorter production time compared to the standard industry approach, this solution enables the production of affordable medical ventilators in Serbia, for the fight against COVID-19 virus (Aug. 2020 – Dec. 2020). Financing: United Nations Development Programme (UNDP)
4. Use of Regressive Artificial Intelligence (AI) and Machine Learning (ML) Methods in Modelling

of COVID-19 spread (COVIDAI) (Jul 2020 – Dec. 2020). Financing: Central-European Initiative (CEI)

Other activities. Member of the Serbian Academy of Nonlinear Sciences. President of the Serbian Society of Mechanics. Secretary of the Serbian Society of Computational Mechanics. Member of the editorial board of international scientific and professional journals: *Intern. J. Monit. Surv. Techn. Res. (IJMSTR)*; *J. Biomed. Health Informatics - IEEE EMBS*; Associate Journal Editor: *IEEE, J. Biomed. Health Inform.*; Editor-in-Chief of International Journal: *EAI Endorsed Trans. Bioeng. Bioinf. (BABY)*; Organizational editor of the national journal *J. Serb. Soc. Comp. Mechanics (JSSCM)*.

Awards and recognitions. Young scientists award, *MIT Conf. Comp. Fluid & Solid Mech.*, Boston, 2003; Acknowledgments of the Faculty of Engineering and Clinical Center Kragujevac in the fight against COVID-19, 2020. The winner of the prestigious award “Kapetan Miša Anastasijević” for contribution to the development of scientific research in the Republic of Serbia, 2020.