



State University of Novi Pazar

# BOOK OF ABSTRACTS

The 8<sup>th</sup> International Conference  
Contemporary Problems of Mathematics,  
Mechanics and Informatics

CPMMI 2024

*Dedicated to Professor Ćemal Dolićanin*



Novi Pazar, 2<sup>nd</sup> – 4<sup>th</sup> June, 2024

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Department of Sciences and Mathematics, State University of Novi Pazar, Novi Pazar, Serbia

Milan Tuba

Artificial Intelligence Project, Singidunum University, Belgrade, Serbia

Dragan T. Spasić

Department of Technical Mechanics, Faculty of Technical Sciences, University of Novi Sad, Novi Sad, Serbia

Edin Dolićanin

Department of Technical and Technological Sciences, State University of Novi Pazar, Novi Pazar, Serbia

Enes Kačapor

Department of Sciences and Mathematics, State University of Novi Pazar, Novi Pazar, Serbia

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## Towards Citizen-Centered Smart Services Research Insights from a Project

Ejub Kajan<sup>1</sup>, Emir Ugljanin<sup>2</sup>, Ulfeta Marovac<sup>3</sup>, Aldina Avdić<sup>4</sup>, Adela Ljajić<sup>5</sup>

<sup>1,2,3,4</sup>*State University of Novi Pazar, Novi Pazar, Serbia*

<sup>5</sup>*Institute for Artificial Intelligence Research and Development of Serbia, Novi Sad, Serbia*

<sup>1</sup>*dr.ejubkajan@gmail.com, ORCID 0000-0002-3753-3535*

<sup>2</sup>*emirugljanin@gmail.com, ORCID 0000-0003-1721-3208*

<sup>3</sup>*umarovac@np.ac.rs, ORCID 0000-0001-7232-3755*

<sup>4</sup>*aldina.pljaskovic@gmail.com, ORCID 0000-0003-4312-3839*

<sup>5</sup>*adelacrnisanin@gmail.com, ORCID 0000-0001-7326-059X*

**Abstract.** This paper presents research on citizen-centered services smart services from the perspective of a project partially supported by Ministry of Education, Science and Technological Development of the Republic of Serbia under Grant No. III44007. Initially intended to E-Government services in social, economical and biological domains it is naturally extended to smart city services due to the common goals in terms of citizen-centered services, common data sources, similar technologies, and the like. It is also overlapped with some international cooperation with similar goals. Both, E-Government and smart cities feed on information that originates from their sensors, citizens and IoT, and, in return, provide smart services that aim to improve the quality of life and achieve more efficient management in the different environments in which they operate. The sensing is provided by listening to citizen opinions via social media, like Facebook, X (formerly, Twitter), and the like, and other Web 2.0 methods like crowdsensing and crowdsourcing, etc., on the one hand. On the other hand, the emerging world of IoT allows us to sense some phenomena in an environment like temperature, air pollutants, traffic congestion, fire, flooding, etc. Development and deployment of citizen-centered services is analysed through the prism of four dimensions, namely (1) modeling and decision making, (2) sensing and analysing, (3) willingness and engagement, and (4) openness and transparency. In addition, key technological enablers that drive the full achievement of these dimensions are briefly discussed. To address the challenges we faced, we had to contend with several issues. These include the enormous amount of data with high velocity, value and variety, the complexity of Serbian language and grammar in the absence of lexical resources, and the limitations of IoT resources, just to mention a few. These challenges are discussed in related work and brief overview of proposed solutions, with special emphasizes on a framework, the design of several specialized social machines, text processing in Serbian language, sentiment analysis, business process management and an excerpt of developed and deployed services. Alongside with published work and its main contribution, key mathematical foundations and technologies used, are briefly presented. Finally, some open issues and research agenda are given. *This paper is written in the memory of late Prof. Čemal Dolićanin who lead III44007 project.*

**Keywords:** e-government, smart cities, social machines.

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