

## Curriculum Vitae: Karlo Babić

---

CONTACT INFORMATION	University of Rijeka Faculty of Informatics and Digital Technologies Radmile Matejčić 2 HR-51000, Rijeka Croatia	<i>phone:</i> +385 51 584-718 <i>mail:</i> karlo.babic@inf.uniri.hr <i>web:</i> www.inf.uniri.hr
	Researcher ID ORCID	E-5801-2019 <a href="https://orcid.org/0000-0001-6343-0938">https://orcid.org/0000-0001-6343-0938</a>
EDUCATION	<b>PhD, Information Science</b> , University of Rijeka, Faculty of Informatics and Digital Technologies, 2018-present. <b>M.Sc., Informatics</b> , University of Rijeka, Faculty of Informatics and Digital Technologies, 2016-2018. Thesis Topic: <i>Visualization of learning algorithms of neural networks</i> . Supervisor: Ana Meštrović. <b>B.E., Informatics</b> , University of Rijeka, Faculty of Informatics and Digital Technologies, 2013-2016. Thesis Topic: <i>Implementing the Solar System model using OpenGL library and C++ language</i> . Supervisor: Ana Meštrović.	
LIFELONG LEARNING AND PROFESSIONAL SPECIALIZATION	<b>4th International School on Deep Learning</b> Las Palmas de Gran Canaria, Spain <b>Workshop "Search tools for scientific sources"</b> University of Rijeka, Rijeka, Croatia <b>Early Career Training Event COSTNET</b> The Department of Statistics, Ludwig-Maximilians-University, Munich, Germany February 2019	26-30 July 2021 9 April 2019
PROFESSIONAL POSITIONS	<b>Assistant</b> Faculty of Informatics and Digital Technologies, University of Rijeka 2018 - present	
RESEARCH INTERESTS	Machine learning, neural networks, simulations, natural language processing, representation learning	
RESEARCH PROJECTS	<b>Researcher</b> <ul style="list-style-type: none"><li>• Multilayer Framework for the Information Spreading Characterization in Social Media during the COVID-19 Crisis (HRZZ InfoCoV) 2020 - 2022</li><li>• Keyword Extraction and Summarization Based on Language Networks (LangNet), uniri-drustv-18-20 2019 - 2022</li><li>• Methods for measuring semantic similarity of texts (SemTex), uniri-drustv-18-38 2019 - 2022</li></ul>	
PUBLICATIONS	<b>Journal publications</b> K. Babić, M. Petrović, S. Beliga, S. Martinčić-Ipšić, M. Matešić, A. Meštrović. "Characterisation of COVID-19-Related Tweets in the Croatian Language: Framework Based on the Cro-CoV-cseBERT Model." Applied Sciences, 2021, 11, 21.	

K. Babić, F. Guerra, S. Martinčić-Ipšić, A. Meštrović. "A Comparison of Approaches for Measuring the Semantic Similarity of Short Texts Based on Word Embeddings." JIOS, 2020, 44, 2.

A. Vorkapić, K. Babić, R. Radonja, S. Martinčić-Ipšić. "Machine learning methods in monitoring operating behaviour of marine two-stroke diesel engine." Transport, 2020, 35, 5.

K. Babić, S. Martinčić-Ipšić, A. Meštrović. "Survey of Neural Text Representation Models." Information, 2020, 11, 511.

### Conference proceedings

K. Babić, M. Petrović, S. Beliga, S. Martinčić-Ipšić, M. Pranjić, A. Meštrović. "Prediction of COVID-19 Related Information Spreading on Twitter." MIPRO, DS-BE, 2021, Opatija, Croatia, 2021, pp. 395-399.

K. Babić, M. Petrović, S. Beliga, S. Martinčić-Ipšić, A. Jarynowski, A. Meštrović. "COVID-19-Related Communication on Twitter: Analysis of the Croatian and Polish Attitudes." ICICT, London, England, 2021, pp. 379-390.

K. Babić, S. Martinčić-Ipšić, A. Meštrović, F. Guerra. "Short texts semantic similarity based on word embeddings." CECIIS, Varaždin, Croatia, 2019, pp. 27-33.

K. Babić, A. Meštrović. "Visualizations of the training process of neural networks." MIPRO, SP, 2019, Opatija, Croatia, 2019, pp. 1619-1623.

### Talks

K. Babić, S. Martinčić-Ipšić. "The representation of text in a multilayer complex network for deep learning." 4th COSTNET Action conference, Bilbao, Spain, 9-11 September 2019. (Poster)

K. Babić. "The representation of text in a multilayer complex network for deep learning." Early Career Training Event COSTNET, the Department of Statistics, Ludwig-Maximilians-University, Munich, Germany, 11-13 February 2019.

K. Babić, A. Meštrović. "Neural networks visualizations." 10th International Conference on Information Technologies and Information Society, Novo Mesto, Slovenia, 24-26 October 2018.

### TEACHING EXPERIENCE

#### Undergraduate courses

- Introduction to software engineering, FIDIT<sup>1</sup>, University of Rijeka 2023
- Basics of game development, FIDIT, University of Rijeka 2022-2023
- Programming Paradigms and Languages, FIDIT, University of Rijeka 2021-
- Formal Languages and Compilers 2, FIDIT, University of Rijeka 2019-2020
- Declarative programming languages, FIDIT, University of Rijeka 2019-2022
- Formal Languages and Compilers 1, FIDIT, University of Rijeka 2018-2021
- Programming 1, Department of Polytechnics, University of Rijeka 2018-2019

#### Graduate courses

- Data intelligence, FIDIT, University of Rijeka 2023-
- Big data analytics, FIDIT, University of Rijeka 2023-
- Programming for artificial intelligence, FIDIT, University of Rijeka 2023-
- Object-Oriented Languages, FIDIT, University of Rijeka 2021

<sup>1</sup>FIDIT - "Faculty of Informatics and Digital Technologies"

- Natural Language Processing, FIDIT, University of Rijeka 2019-
- Decision Support Systems, FIDIT, University of Rijeka 2019-2022
- Management of IT Projects, FIDIT, University of Rijeka 2018-2021

TECHNICAL  
SKILLS

**Operating Systems**

GNU/Linux, MS Windows

**Programming Languages**

Advanced: Python

Intermediate: C++, JavaScript, Java, Bash

Beginner: Haskell, PHP, Oz

**Tools**

L<sup>A</sup>T<sub>E</sub>X, TensorFlow/Keras, Godot, Unity

HOBBY PROJECTS

**Simulations**

Abstracted fluid, fluid flow on terrain, dynamics of falling flat object through air, pendulums, evolution tree generation, animated mathematics of chaos

**Cellular automaton**

Game of life and modified versions, liquid automaton

**Web scraping**

Celestial events information, weather information, website crawler with audio and video scraping

Simulations and games using JavaScript

**Video games**

For Web with JavaScript, and for mobile phones with Godot (Paperfall is on Google Play)

LANGUAGES

*Fluent:* Croatian, English