



Domagoj Hackenberger Kutuzović

Date of birth: 29 Dec 1991 | **Nationality:** Croatian | **Gender:** Male |

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Našička 4, 31000, Osijek, Croatia

● WORK EXPERIENCE

20 DEC 2020 – CURRENT – Osijek, Croatia

RESEARCH ASSISTANT – DEPARTMENT OF BIOLOGY, JOSIP JURAJ STROSSMAYER UNIVERSITY

Subdepartment of quantitative ecology | Professional, scientific and technical activities |

Cara Hadrijana 8/a, 31000, Osijek, Croatia

JUL 2017 – 20 DEC 2020 – Osijek, Croatia

RESEARCHER – BIOQUANT D.O.O.

Zagreb, Croatia

INTERN – GEONATURA D.O.O.

2015 – 2015 – Osijek, Croatia

RESEARCHER – BIOQUANT D.O.O.

Student job

● EDUCATION AND TRAINING

2017 – CURRENT – Rooseveltov trg, Zagreb, Croatia

PHD (BIOLOGY) – University of Zagreb, Faculty of Science

Field(s) of study

◦ Natural sciences, mathematics and statistics : *Biology*

EQF level 8

Cara Hadrijana 6a, Osijek, Croatia

MASTER OF SCIENCE (ENVIRONMENTAL SCIENCES) – Josip Juraj Strossmayer University, Department of Biology

Field(s) of study

◦ Natural sciences, mathematics and statistics : *Environmental sciences*

Bat (Chiroptera) call sequence extraction from long series of field audio recordings using ML | EQF level 7 |

www.biologija.unios.hr

7 APR 2015 – Cara Hadrijana 8a, Osijek, Croatia

UNIVERSITY BACHELOR (BIOLOGY) – Josip Juraj Strossmayer University, Department of Biology

Field(s) of study

◦ Natural sciences, mathematics and statistics : *Biology*

EQF level 6 | www.biologija.unios.hr

● LANGUAGE SKILLS

Mother tongue(s): CROATIAN

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISKI	C2	C2	C1	C1	C2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

● DIGITAL SKILLS

Programming

Python | JavaScript | CSS | HTML | GUI dizajn | Izrada web stranica | C++ | C | Parallel computing (CUDA) | C

GIS/Mapping/Photogrammetry

QGIS | Metashape | Photogrametrija

Data science

Python (Matplotlib NumPy sciki-learn) | Deep Learning | TensorFlow | Keras | Numba | R

Basic computing skills

MS Office (MS Word MS Powerpoint MS Excel MS) | Windows | macOS | Linux

● PUBLICATIONS

Observing earthworm behavior using deep learning

Tamara Djerdj, Domagoj K.Hackenberger, Davorka K.Hackenberger, Branimir K. Hackenberger

<https://doi.org/10.1016/j.geoderma.2019.113977> – 2020

Earthworm behavior represents a valuable endpoint in ecological and ecotoxicological studies, providing insight into individual- and population-level responses of organisms to ecological factors and xenobiotics. Difficulties in observing activities of soil-dwelling organisms come from the soil matrix surrounding the animals. We present an automated system for continuous monitoring of earthworm behavior directly in the soil. Performances of the developed system are tested in an avoidance test set-up. The developed system includes a 2D terrarium serving as an experimental compartment and a deep convolutional neural network model for continuous monitoring of earthworm behavior. Quantification of activity of organisms is based on the predictions of the neural network model made from image sequences captured during the exposure. Performance of the system was validated by comparison with results of the standard avoidance test, using H3BO3, a standard pollutant. The presented system represents a simple, cost-effective, fast, accurate and objective tool for continuous earthworm behavior monitoring in ecological and ecotoxicological studies. Source code and training data of this system are made freely available on GitHub.

ErIK—a software-based identification key for earthworm species of Croatia

Davorka K. Hackenberger, Domagoj K. Hackenberger, Tamara Djerdj, Branimir K. Hackenberger,

<http://dx.doi.org/10.11646/zootaxa.4613.3.11> – 2019

The need for reliable taxonomic species identification is always present. Correct identification of specimens is based on taxonomic research, scattered in the scientific literature and accessible only for a restricted group of specialists or research institutions with extensive library facilities (Zuquim et al. 2017). Therefore, identification keys that summarize the knowledge of a group of biota are very important; they provide the link between producers and users of taxonomy. Recently, printed identification keys are increasingly being replaced or supplemented by computer-aided keys.

● CONFERENCES AND SEMINARS

2019 – Ghent, Belgija: SETAC Europe, 2019.

Application of low-cost CO2 sensor systems as a tool for continuous uptake/emission measurements in Lemna toxicity tests

Predavanje

2018 – The 1st International Earthworm Congress (IEC 1), Šangaj, Kina

The determination of earthworm species with a software key

Predavanje

2018 – SETAC Europe 28th Annual Meeting Rim, Italija

Assessing toxicity to Daphnia magna using movement parameters

Poster

18 SEP 2015 – 23 SEP 2015 – Sveti Martin na muri | 12. Biološki kongres

Multispectral vegetation analysis system for biological and ecological research

Predavanje

<http://www.hbd-sbc.hr/wordpress/wp-content/uploads/2013/07/12Kongres-Abstracts.pdf>

18 SEP 2015 – 23 SEP 2015 – Sveti Martin na Muri | 12. Biološki kongres

ErIK: Software platform for identification of earthworms of Croatia

Poster

<http://www.hbd-sbc.hr/wordpress/wp-content/uploads/2013/07/12Kongres-Abstracts.pdf>

● PROJECTS

20 DEC 2020 – CURRENT

KK.05.1.1.02.0008. Adaptation of mosquito population control measures to climate change in Croatia

<http://cadapt.biologija.unios.hr>