Fran Huzjan, Ph.D.

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Personal Profile

As a doctorate specializing in Computer Science who has received his Ph.D. with magna cum laude honors in July 2023, I have extensive experience researching and developing deep learning models, particularly in the field of image analysis. I've demonstrated leadership in my role leading a student team in the research and development of deep learning models for parking space detection. My active engagement in academia includes serving as a research assistant and teaching assistant at the University of Zagreb. My diverse technical skill set includes expertise in building deep learning and machine learning models, computer vision, and statistical analysis, with proficiency in Python and its libraries such as PyTorch and OpenCV. Beyond academia, I leverage my analytical skills in personal projects such as analyzing NBA data and competing in athletic leagues, underscoring my passion for sports.

Employment History

Sep 2023 – · · · ·

Professor of Computer Science College of Occupational Safety and Health, Zagreb, Croatia
Instructing students in the practical application of information technology, emphasizing the role of information in facilitating effective work processes
Teaching students how to use computer software, office programs, and computer networks to manage knowledge and improve work efficiency

DBA Mentor Swiss School of Business and Management, Zagreb, Croatia
Mentoring students in their Doctor of Business Administration (DBA) programs

Aug 2020 – · · · ·

Research Assitant University of Zagreb, Faculty of Electrical Engineering and Computing, Zagreb, Croatia
Research and development of deep learning models for spray macroscopic parameters estimation from diesel images
Development of desktop application with 5 modules for spray image analysis
Teacher assistant in courses *Deep Learning* and *Scripting Languages* - constructed and held exams and lab assignments. Co-mentored four students in their B.Sc thesis and some M.Sc seminars

Sep 2018 – Aug 2020

Student Team Lead 3MI Lab, Zagreb, Croatia
Research and development of deep learning models for detection of parking space occupancy from a surveillance camera
Development of a system that counts free parking spaces and communicates with the server
Deep learning models optimization and implementation on Raspberry PI hardware

Sep 2017 – Nov 2017

Software Developer Intern KING ICT, Zagreb, Croatia
Development of a web application for the company's inventory

Education

Aug 2020 – Jul 2023

Ph.D. Computer Science, University of Zagreb, Faculty of Electrical Engineering and Computing
Relevant Courses: *Data Mining, Image Processing, Image Analysis, Pattern Recognition And Computer Vision, The Elements Of Statistical Learning*
Thesis title: *Deep learning-based analysis of fuel spray images*

Sep 2018 – Jul 2020

M.Sc. Computer Science, University of Zagreb, Faculty of Electrical Engineering and Computing
Relevant Courses: *Machine Learning, Deep Learning, Fuzzy And Neural Computing, Quantum Computing, Cryptocurrencies And Blockchain Technologies*
Thesis title: *Parking space occupancy detection*

Education (continued)

Sep 2015 – Jul 2018 — **B.Sc. Computer Science, University of Zagreb, Faculty of Electrical Engineering and Computing**
Relevant Courses: *Artificial Intelligence, Objective–Oriented Coding, Algorithms And Data Structure, Databases, System Oriented Programming*
Thesis title: *Optimizing GPS parameters using Genetic Algorithm*

Skills

Languages	English - Professional proficiency German - Speaking proficiency Croatian - Native proficiency
Technical Skills	Deep Learning, Computer Vision, Machine Learning, Predictive Modelling, Statistical Analysis, Data Visualization, Genetic Programming
Tools and software	Python, PyTorch, Tensorflow, OpenCV, SciPy, matplotlib, Git, Linux, NumPy, Pandas, Keras, Bash, LaTeX, MacOS
Misc.	Academic research, teaching, consultation

Miscellaneous Experience

- 2023 — Developed a statistical machine learning-based model called CARUSO used to improve NBA fantasy ranking
- 2021 – 2022 — Presented research poster at 9th and 10th Croatian Computer Vision Workshop (CCVW)
- 2021 - 2022 — Participated on the 6th and 7th International Workshop of Data Science (IWDS)
- 2020 — Became a member of the Image Processing Group
- Organized and facilitated an interdisciplinary workshop on Computer Vision in spray diesel images, engaging multiple faculties at the University of Zagreb, Faculty of Electrical Engineering and Computing

Research Publications

Journal Articles

1. F. Huzjan, F. Jurić, S. Lončarić, and M. Vujanović, "Deep Learning-based Image Analysis Method for Estimation of Macroscopic Spray Parameters," *Neural Computing and Applications*, vol. 35, no. 13, pp. 9535–9548, 2022, ISSN: 1433-3058. DOI: 10.1007/s00521-022-08184-3.

Conference Proceedings

1. F. Huzjan, F. Jurić, S. Lončarić, and M. Vujanović, "Deep learning-based cone angle estimation using spray sequence images," in *8th International Conference on Machine Learning Technologies (ICMLT)*, Mar. 2023, ISBN: 978-1-4503-9832-9/23/0. DOI: 10.1145/3589883.3589915.

References

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