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Marjan Stoimchev

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WORK EXPERIENCE

Jožef Stefan Institute – Ljubljana, Slovenia

Address: Jamova cesta 39, 1000 Ljubljana (Slovenia)

PhD researcher

[01/10/2020 – Current]

- Led and managed diverse machine learning projects across multiple domains,
- Developed and implemented advanced ML algorithms, resulting in significant improvements in model accuracy and predictive performance,
- Collaborated with interdisciplinary teams,
- Published research findings in high-impact journals, and presented at international conferences.

EDUCATION AND TRAINING

PhD in Information and Communication Technologies

Jožef Stefan Institute [01/10/2021 – 20/12/2025]

City: Ljubljana | **Country:** Slovenia | **Field(s) of study:** Information and Communication Technologies

Currently working on developing methods for supervised and semi-supervised (hierarchical) multi-label remote sensing image analysis through deep learning, classical machine learning approaches, and the combination of both, classical and deep learning methods.
Skills covered: Statistical modeling, satellite imagery, semi-supervised learning, self-supervised learning.

MSc in Electrical Engineering

Factulty of Electrical Engineering, University of Ljubljana [01/10/2018 – 15/01/2021]

City: Ljubljana | **Country:** Slovenia | **Field(s) of study:** Automation and Informatics | **Thesis:** Learning to Combine Local and Global Image Information for Contactless Palmprint Recognition

- **Skills covered:** Pattern recognition, Computer vision, Artificial intelligence systems, Identification, Information theory and coding, Speech technologies, Intelligent systems in decision support, Imaging technologies, Biometrics, Digital control.
- **Award:** Prešern's award for the best master thesis at the faculty of Electrical Engineering.

BSc in Electrical Engineering

Ss. Cyril and Methodius University of Skopje [15/09/2013 – 15/05/2018]

City: Skopje | **Country:** North Macedonia | **Field(s) of study:** Computer System Engineering, Automation and Robotics | **Thesis:** Detection of Epilepsy using Fuzzy Logic and Neural Networks

- **Skills covered:** Fuzzy logic control, Operations research, Modelling identification and simulation, Robotics, Electronics, Control theory, Biomedical electronics, Probability and statistics, Nonlinear control systems

LANGUAGE SKILLS

Mother tongue(s): Macedonian

Other language(s):

English

LISTENING C2 **READING** C2 **WRITING** C2

SPOKEN INTERACTION C1

Slovenian

LISTENING C2 **READING** C1 **WRITING** B2

SPOKEN INTERACTION B2

Serbian

LISTENING C2 **READING** C1 **WRITING** C1

SPOKEN INTERACTION C1

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

SKILLS

Python / PyTorch / Pytorch Geometric / Keras / HuggingFace / huggingface transformers / NumPy, SciPy, Pandas, Matplotlib / OpenCV / Git / MS Office (Word, Excel-VBA, Power Point) / LaTex / Matlab/Simulik / Medical Image Analysis / Scikit-Learn / Semi-supervised learning / Self-supervised learning / Image reconstruction / GenAI / Object detection / Image segmentation / Remote sensing / Multiplex image analysis / Material science / Cancer research

PUBLICATIONS

[2025]

SSL-MAE: Adaptive Semisupervised Learning Framework for Multilabel Classification of Remote Sensing Images Using Masked Autoencoders

Authors: Marjan Stoimchev, Jurica Levatic, Dragi Kocev, Saso Dzeroski | **Journal Name**: IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing | **Volume, Issue and Pages**: 18, 14882-14896

[2024]

Semi-Supervised Multi-Label Classification of Land Use/Land Cover in Remote Sensing Images with Predictive Clustering Trees and Ensembles

Published in: IEEE Transactions on Geoscience and Remote Sensing, vol. 62, pp. 1-16, 2024, Art no. 4706416

Authors: Marjan Stoimchev; Jurica Levatić; Dragi Kocev; Sašo Džeroski

[2023]

Deep Network Architectures as Feature Extractors for Multi-Label Classification of Remote Sensing Images

Published in: Remote Sensing 15, no. 2: 538

Authors: Marjan Stoimchev; Dragi Kocev; Sašo Džeroski

[2022]

Detection of Epilepsy Using Adaptive Neuro-Fuzzy Inference System and Comparative Analysis

Published in: Complex Systems: Spanning Control and Computational Cybernetics: Applications. Studies in Systems, Decision and Control, vol 415. Springer, Cham.

Authors: Marjan Stoimchev; Vesna Ojleska Latkoska

[2021]
Learning to Combine Local and Global Image Information for Contactless Palmprint Recognition
Published in: MDPI Sensors 22, no. 1: 73.

Authors: Marjan Stoimchev; Marija Ivanovska; Vitomir Štruc

[2020]
Feature space reduction, using pca in the algorithm for epilepsy detection, using an adaptive neuro-fuzzy inference system and comparative analysis
Published in: Acta Polytechnica Hungarica 17(10):89-107

Authors: Marjan Stoimchev; Vesna Ojleska Latkoska

PROJECTS

Deep Learning for Multiplex Immunofluorescence Imaging
Collaborated on a deep learning project for multiplex immunofluorescence imaging in cancer research, developing and training self-supervised models (DinoV2, DinoV3, masked autoencoders) for whole slide image analysis, including embedding space analysis, neighborhood detection, image retrieval, clustering algorithms, and transition analysis, culminating in end-to-end model deployment for clinical applications.

Deep learning based drift correction in atomically resolved STEM images
Led a project developing a deep learning solution for drift correction in atomically resolved Scanning Transmission Electron Microscopy (STEM) images. Collaborated closely with microscopists to understand the challenges of drift distortions, proposed and implemented a deep learning-based method that significantly reduced the time and cost required to acquire high-resolution, drift-free images. My solution improved image quality, streamlined the workflow, and was adopted as a standard process in their imaging operations.

Other relevant projects:

- Zero-shot image segmentation for analysis of nanomagnetic particles
- Hierarchical multi-label image classification of remote sensing images using graph neural networks
- Diatom image processing and deep learning analysis
- Leaf recognition with deep convolutional neural networks
- Deep multi-label and hierarchical multi-label image classification on large scale remote sensing datasets
- Semi-supervised multi-label classification on remote sensing image datasets
- Brain tumor radiogenomic classification
- Detection of epilepsy using fuzzy logic and soft computing methods
- Contactless palmprint recognition with deep local image descriptors

HOBBIES AND INTERESTS

Basketball

Swimming

Hiking

Online games

Painting

ORGANISATIONAL SKILLS

Team player

Impeccable analytical and problem-solving skills

Innovative mind with a passion for continuous learning

Excellent time management and organizational skills

Comprehensively read, understand the situation, act quickly and smartly

Decently skilled in the art of negotiation and persuasion