Matej Grcić

m.j.grcic7@gmail.com
matej.grcic@fer.hr
Lausanne, Switzerland
Zagreb, Croatia

WORK EXPERIENCE

MAR 2023 - ONGOING	**Research Assistant at MLBio lab, EPFL**
	Machine Learning for Biomedicine
Goals	Automated discovery of fine-grained cell types from single-cell RNA transcriptomic data
	Integration of multiple inconsistently annotated single-cell datasets into a unified single-cell taxonomy
JUL 2020 - ONGOING	**Research Assistant at University of Zagreb, FER**
	Deep Learning for Computer Vision
Goals	Outlier-aware semantic segmentation of road-driving scenes in real time
	Semantic segmentation of road-driving scenes with adverse driving conditions
	Pixel-level out-of-distribution detection
	Computationally efficient generative models for natural images
JAN 2020 - JUN 2020	**Software Engineer Intern at LifeNome**
	Bioinformatics in Skincare
Goals	Building user interface around intelligent solutions for personalized skincare
	Deployment of web applications for human genome management
FEB 2018 - NOV 2019	**Software Engineer Intern at Axilis**
	Web App Development
Goals	Development and deployment of workflow for stateless microservices
	Efficient front-end applications for data streams management

EDUCATION

SEP 2023 - AUG 2024	**Visiting PhD**
	École Polytechnique Fédérale de Lausanne, EPFL
Supervisor	prof. Maria Brbic
Topics	Machine Learning for single-cell biology, Fine-grained class discovery, Learning from multiple datasets
NOV 2020 - SEP 2023	**PhD in Computer Vision**
	University of Zagreb, FER
Supervisor	prof. Siniša Šegvić
Topics	Semantic segmentation, Anomaly detection, Out-of-distribution detection, Synthetic data, Probabilistic modeling, Real-time inference
OCT 2018 - JUL 2020	**MSc in Computer Science**
	University of Zagreb, FER
Coursework	Machine Learning, Deep Learning, Pattern Recognition
MSc thesis	Dense out-of-distribution detection by using generative models
OCT 2015 - JUL 2018	**BSc in Computing**
	University of Zagreb, FER
Coursework	Algorithms and Data Structures, Object-oriented programming,
	Design Patterns, Artificial Intelligence
BSc thesis	Neural architecture search with genetic evolution algorithms

RESEARCH PROJECTS

FEB 2021 - SEP 2023	**ADEPT: Advanced Dense Prediction**
	Semantic analysis of natural images at the pixel level
	Funded by: Croatian Science Foundation
SEP 2020 - AUG 2023	**A-Unit**
	Research and development of an advanced unit
	for autonomous control of mobile vehicles in logistics
	Funded by: European Regional Development Fund (ERDF)

Scholarships & Awards

May 2023   **Swiss Federal Government Excellence Scholarship**
Academic year 2023./2024. Link

June 2022   **Winner of ACDC Challenge**
Semantic segmentation in adverse weather conditions
CVPR 2022 Workshop Vision For All Seasons

July 2020   **Dean's Award for outstanding individual research**
University of Zagreb, Academic year 2019./20.

Academic service

Program chair - CVPR2024 Workshop
VAND 2.0: Visual Anomaly and Novelty Detection - 2nd Edition

Reviewer for prestigious journals and conferences
Journals: IEEE TPAMI, IEEE TNNLS, IEEE TIP
Conferences: CVPR, ICCV, ECCV, NeurIPS, ICML, ICLR, ACCV

Skills

Programming (Python, Java, JavaScript)   ML frameworks (Pytorch, Scikit)
Agile research and development   Design Patterns & Clean code

Languages

English: Fluent   Croatian: Native

Links

Scholar: Matej Grcic   GitHub: github/matejgrcic   LinkedIn: in/matej-grcic

Publications

1. Fine-grained Classes and How to Find Them. Matej Grcić, Artyom Gadetskii, Maria Brbic. **under review**. 2024.

2. Outlier detection by ensembling uncertainty with negative objectness. Anja Delić, Matej Grcić, Siniša Šegvić. **under review**. 2024. https://arxiv.org/abs/2402.15374

3. Hybrid Open-set Segmentation with Synthetic Negative Data. Matej Grcić, Siniša Šegvić. Journal submission, **under review**. 2023. https://arxiv.org/abs/2301.08555

4. On Advantages of Mask-level Recognition for Outlier-aware Segmentation. Matej Grcić, Josip Šarić, Siniša Šegvić. **CVPR workshop 2023.** https://arxiv.org/abs/2301.03407

5. DenseHybrid: Hybrid Anomaly Detection for Dense Open-set Recognition. Matej Grcić, Petra Bevandić, Siniša Šegvić. **ECCV 2022.** https://arxiv.org/abs/2207.02606.

6. Dense Out-of-Distribution Detection by Robust Learning on Synthetic Negative Data. Matej Grcić, Petra Bevandić, Zoran Kalafatić, Siniša Šegvić. **MDPI Sensors**, special issue *Artificial Intelligence and Smart Sensors for Autonomous Driving*, 2024. https://arxiv.org/abs/2112.12833.

7. Densely connected normalizing flows. Matej Grcić, Ivan Grubišić, Siniša Šegvić. **NeurIPS 2021**. https://arxiv.org/abs/2106.04627

8. Dense open-set recognition with synthetic outliers generated by Real NVP. Matej Grcić, Petra Bevandić, Siniša Šegvić. **VISAPP 2021**. https://arxiv.org/abs/2011.11094