Sebastian **Mežnar**

MACHINE LEARNING RESEARCHER

Vojkova 6, 6330 Piran, Slovenia

☐ (+386) 51-322-108 | ✉ meznar.sebastian@gmail.com | 🏠 smeznar.github.io | 🔗 smeznar | 🎓 Sebastian Mežnar

| 🔗 sebastian-meznar

About me

Machine learning enthusiast with a strong interest in interpretable machine learning, machine learning on graphs, symbolic regression (equation discovery), and data science. In my free time I enjoy watching/playing sports and reading fantasy novels.

Work Experience

Actual I.T.
Koper, Slovenia

SOFTWARE ENGINEER
Summer 2017

- Programed different parts of a web application (JavaScript),
- Build JSON schemes for validating API request and responses.

Mercury Processing Services International
Koper, Slovenia

SOFTWARE ENGINEER
Summer 2017 - 2019

- Developed parts of a mockup Android application (Android/Java),
- Ported functionality between different versions of an Android application (Android/Java),
- Made unit tests for various parts of a web application (C# & JavaScript),
- Developed and improved parts of a web application (C# & JavaScript).

Jožef Stefan Institute, Department of Knowledge Technologies
Ljubljana, Slovenia

MACHINE LEARNING RESEARCHER
Mar 2020 - Sep. 2022

- Developed machine learning algorithms for various tasks on graph (network) data,
- Developed an approach for symbolic regression,
- Wrote several papers on general ML tasks, graph (network) related ML tasks, and symbolic regression.

Jožef Stefan Institute, Department of Knowledge Technologies
Ljubljana, Slovenia

YOUNG RESEARCHER
Oct. 2022 - Present

- Developed machine learning algorithms for various tasks on graph (network) data,
- Developed an approach for symbolic regression,
- Wrote several papers on general ML tasks, graph (network) related ML tasks, and symbolic regression.

University of Ljubljana, Faculty of Mathematics and Physics
Ljubljana, Slovenia

TEACHING ASSISTANT
Oct. 2023 - Present

- Conducted practical exercises, prepared and graded exams
- TA for Discrete Mathematics

Education

Srednja tehniška Šola Koper
Koper, Slovenia

HIGH SCHOOL GRADUATE
Sep. 2012 - Jun. 2016

- High school diploma with a focus on computer science.

University of Ljubljana, Faculty of Computer and Information Science
Ljubljana, Slovenia

DIPLOMIRANI INŽENIR RAČUNALNIŠTVA IN MATEMATIKE (UN)
Oct. 2016 - Sep. 2019

- Bachelor's degree in computer science and mathematics with a focus on courses related to machine learning, algorithms, and data science.
- Bachelor's thesis from the field of machine learning with the title: "Modeling the playstyle of a basketball team from spatial data"

University of Ljubljana, Faculty of Mathematics and Physics
Ljubljana, Slovenia

MAGISTER INŽENIR RAČUNALNIŠTVA IN MATEMATIKE
Oct. 2019 - Aug. 2022

- Master's degree in computer science and mathematics with focus on courses related to machine learning and data science.
- Helped as a tutor for CS and machine learning related subjects during third (extra) year.
- Master's thesis from the field of deep learning and equation discovery with the title: "Efficient generative model for algebraic expressions and equation discovery"

Jožef Stefan International Postgraduate School *Ljubljana, Slovenia*
DOKTOR ZNANOSTI *Oct. 2022 - Present*
- Doctoral study in information and communication technologies.

Publications

SNoRe: Scalable Unsupervised Learning of Symbolic Node Representations *IEEE Access*
SEBASTIAN MEŽNAR, NADA LAVRAČ, BLAŽ ŠKRLJ *2020*
Paper presents SNoRe, an unsupervised node embedding algorithm that achieves state-of-the-art performance and is interpretable.

Prediction of the Effects of Epidemic Spreading with Graph Neural Networks *Complex Networks 2020*
SEBASTIAN MEŽNAR, NADA LAVRAČ, BLAŽ ŠKRLJ *2020*
In this paper we explore how well epidemic spreading problems can be predicted with machine learning.

Predicting Generalization in Deep Learning via Metric Learning – PGDL Shared task *NeurIPS 2020 - competition*
SEBASTIAN MEŽNAR, BLAŽ ŠKRLJ *2020*
A technical report for the approach my team submitted to the PGDL NeurIPS 2020 competition.

Transfer Learning for Node Regression Applied to Spreading Prediction *Complex Systems*
SEBASTIAN MEŽNAR, NADA LAVRAČ, BLAŽ ŠKRLJ *2021*
This paper explores how effects of epidemic spreading on networks can be studied with more accuracy and fewer simulations. It is to our knowledge one of the first papers to explore transferability of the learned representations for the task of node regression.

Ontology Completion with Graph-Based Machine Learning: A Comprehensive Evaluation *MAKE*
SEBASTIAN MEŽNAR, MATEJ BEVEC, NADA LAVRAČ, BLAŽ ŠKRLJ *2022*
In this paper we present an approach for ontology completion using graph-based machine learning.

Efficient Generator of Mathematical Expressions for Symbolic Regression *Machine Learning (Springer)*
SEBASTIAN MEŽNAR, SAŠO DŽEROSKI, LJUPČO TODOROVSKI *2023*
The paper presents an efficient approach for generating algebraic expressions with a variational autoencoder by looking at them as binary expression trees. Further, we combine the decoder with an evolutionary algorithm to improve symbolic regression results.

Competitions and Awards

NOTABLE

2015	**Gold award, 11th place**, Vegovo tekmovanje	*Ljubljana, Slovenia*
2019	**1st place in Slovenia, 256 place overall**, Google Hash Code	*Virtual*
2020	**Dean's award for outstanding academic performance**, FMF school year 2019/20	*Ljubljana, Slovenia*
2020	**8th place**, Predicting Generalization in Deep Learning, NeurIPS 2020 competition	*Virtual*

OTHER

2008 - 2019	**Attendance**, Vegovo tekmovanje	*Slovenia*
2016, 2018, 2019	**Attendance**, Univerzitetni Programerski Maraton (UPM)	*Slovenia*
2018, 2019, 2020, 2022	**Attendance**, Google Hash Code	*Virtual*

Skills

Programming	Python (main), Java (competent), C# (competent), Rust (basic), JavaScript (basic), R (basic), SQL (basic), …
Writing	LaTeX, Markdown, HTML
Libraries	SciPy, PyTorch, Pandas, Matplotlib, Seaborn, …
Languages	Slovenian, English, Italian

Extracurricular Activity

EDUCATION

Summer Schools *Various*
ATTENDANCE *July 2022 - Present*
- Zemanta Data Science Summer School 2022. A summer school focused on data science and recommender systems. July 2022, Ljubljana, Slovenia
- Generative Modeling Summer School 2023. A summer school focused on generative modeling. June 2023, Copenhagen, Denmark
- ESSAI & ACAI 2023. A summer school focused on various topics in AI. July 2023, Ljubljana, Slovenia.

Conferences
Various

ATTENDANCE

Dec. 2020 - Present

- Attended and presented at conferences: NeurIPS 2020, Complex Networks 2020, IPSSC 2022, IPSSC 2023, ILP 2022, SCORES 2022, AAAI 2023 Spring Symposium Series, ECML/PKDD 2023.
- Only attended: NeurIPS 2021, NeurIPS 2023, ICML 2021, LOG 2022, LOG 2023.

University of Ljubljana, Faculty of sports
Ljubljana, Slovenia

VOLLEYBALL COACH, THIRD RANK

Sep. 2015 - Oct. 2015

- Coaching licence needed for coaching children.

EXTRA EXPERIENCE

Volley Club Portorož
Portorož, Slovenia

BUILDING CARETAKER

Summer 2012 - 2016

- Took care of beach volleyball courts and buildings surrounding them,
- Rented beach volleyball courts,
- Helped with the organization of beach volleyball tournaments.

Volley Club Portorož & Športno društvo Piran
Piran, Slovenia

COACH

Jun. 2015 - Sep. 2016

- Couched children from different age groups.

Klub Študentov Občine Piran
Piran, Slovenia

COUNCIL MEMBER

Nov. 2018 - Jan. 2022

- Helped with the organization of different events,
- Attended meetings and voted at ŠKIS/ŠOLS as club's representativ,
- Was in charge of editing the club's website.

IPS student council
Ljubljana, Slovenia

COUNCIL MEMBER

Oct. 2022 - Present

- Helped with the organization of events.
- Representative for the ICT program

Jožef Stefan Institute
Ljubljana, Slovenia

SCHOOL VISIT COORDINATOR

Oct. 2022 - Present

- Presented scientific work at the department of knowledge technologies to visitors of various age groups.

Conferences & Summer School
Ljubljana, Slovenia

ORGANIZATION

Dec. 2022 - Present

- IPSSC 2023. Volunteer work as part of abstract team (prepared the submission template and system, created the book of abstracts) and with various tasks during the conference.
- IPSSC 2024. Volunteer work as the leader of the abstract team
- ESSAI & ACAI 2023. Helped as a volunteer with various tasks (setup, registration, lecture monitoring, ...).

FREE TIME

GO Volley & Volley Club Portorož
Slovenia

VOLLEYBALL

2011 - 2016

- Top 4 finish 5 times with GO Volley,
- U18 national champion in the 2013/14 season with GO Volley,
- Third division champions with Volley Club Portorož in 2015/16 season.