

# Marius Captari

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## Education

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- MSc Artificial Intelligence**, University of Groningen Groningen, Netherlands  
Sep 2021 - Dec 2023
- Grade: *Cum Laude* 8.7/10 ([Transcript](#))
  - **Thesis:** When to Explore: Guiding Deep Reinforcement Learning with State Counts and Value State Prediction Errors for Efficient Learning. Grade 9.0.
  - **Coursework:** Machine Learning, Deep Learning, Deep RL, Computer Vision, Web and Cloud Computing, Scalable Computing.
- BSc Computer Engineering**, University of Lisbon Lisbon, Portugal  
Sep 2017 - Aug 2020
- **Coursework:** Algorithms and Data Structures, Object Oriented Programming, Operating Systems, Computer Networks, Databases, Distributed Systems.

## Publications

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- VDSC: Enhancing Exploration Timing with Value Discrepancy and State Counts** Mar 2024  
Marius Captari, Remo Sasso, Matthia Sabatelli  
[10.48550/arXiv.2403.17542](https://arxiv.org/abs/10.48550/arXiv.2403.17542), [GitHub](#)

## Experience

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- Data Scientist**, Brisa - Portuguese Highways Lisbon, Portugal  
Sep 2020 - Aug 2021
- Developed and deployed a traffic prediction time-series forecasting model, enhancing predictive accuracy and operational efficiency.
  - Implemented unsupervised learning for customer segmentation, providing insights through a dashboard and boosting email effectiveness via a recommendation engine.
  - Streamlined data processing pipelines by orchestrating and optimizing workflows and job scripts using Airflow, resulting in improved efficiency and reduced execution time.
- Data Science Intern**, Brisa - Portuguese Highways Lisbon, Portugal  
Jun 2019 - Aug 2019
- Developed an ensemble of ML models to flag possible fraudulent transactions.

## Projects

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- Algorithm Implementations** 2023
- Implemented several state-of-the-art deep reinforcement learning algorithms.
- Real-Time Chat App** 2022
- Designed a scalable web chat app with user-created rooms using WebSocket APIs.
  - Deployed as a Kubernetes cluster on Google Cloud, enhancing scalability.
- Formula 1 Predictions** 2021
- Built an engine to predict drivers' finishing positions.

## Additional Experience And Awards

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- Teaching Assistant (2022):** Conducted weekly labs for Master's courses of Pattern Recognition and Deep Learning.
- Data Science Project (2021):** Awarded 1st place in myeloid leukaemia prediction challenge out of 80 students.

## Technologies

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- Programming Languages:** Python, Java, JavaScript/TypeScript, HTML, CSS, SQL
- Frameworks and Libraries:** PyTorch, JAX, NumPy, Matplotlib, PySpark, scikit-learn, pandas
- Tools and Technologies:** Linux, Git, Docker, Kubernetes, Apache Cassandra, Google Cloud Platform, Slurm