

Timon Deschamps

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Education

PhD Artificial Intelligence	2023 - 2026 (expected) LIRIS, Claude Bernard Lyon 1 University
Graduate School of Engineering Computer Science	2020 - 2023 Polytechnic School of the University of Nantes, France
Two-year university preparatory cycle Mathematics, Computer Science option	2018 - 2020 University of Tours, France
High school diploma Specialization in Sciences	2018 Lycée Montesquieu, le Mans, France

Experience

LIRIS, Claude Bernard Lyon 1 University Lyon, France
PhD student Nov 2023 - Nov 2026 (expected)
Title: Multi-objective multi-agent reinforcement learning for the co-construction of ethical behaviours ([summary](#)).
Supervisor: Laëtitia Matignon

Tencent Remote
Research Scientist Intern Feb 2023 - Aug 2023

- Worked on Tencent Media Lab's response to the call for proposals on Static Polygonal Mesh Coding of AOMedia.
- Developed a prediction and displacement-based scheme for efficient compression leading to BD-Rate gains of up to 30% (C++).
- Created a suite of Python data processing tools used by the team to streamline and speed up experiments.

Airbus Bangalore, India
Machine Learning Engineer Intern Jun 2022 - Sep 2022

- Used reinforcement learning for multi-criterion wing shape optimisation using deep learning-based surrogate models.
- Applied various machine learning and custom deep learning models to predict drag on antenna fairings.
- Introduced AI applications to the engineering team and created an interactive dashboard to speed up antenna fairing design.

Artefakt-AI / Polytech Nantes Nantes, France
ML Engineer / Project Manager (Part-time industrial project) Sep 2021 - May 2022

- Implemented data augmentation methods on a dental x-ray dataset using deep learning-based inpainting (GANs, Autoencoders, Tensorflow/Keras/Python, OpenCV).

Laboratory of Digital Sciences of Nantes (LS2N) / Talend Nantes, France
Software Engineer Intern Jun 2021 - Aug 2021

- Designed an automatic benchmark generation procedure using Bayesian Networks to test the accuracy of an outlier detection algorithm working on mixed tabular data.
- Implemented a robust solution in C++ which is currently used by the Talend R&D team.

Laboratory of Fundamental and Applied Computer Science of Tours (LIFAT) Tours, France
Machine Learning Engineer Intern Jun 2019 - Jul 2019

- Developed an interactive drawing recognition program based on convolutional neural networks (Keras/Tensorflow, Tkinter).
- Created resources to educate a diverse audience on artificial intelligence and neural networks.
- Presented the results at Tours' 2019 science fair to hundreds of visitors.

Publications

2024 - Accepted for oral presentation at PFIA 2024 ([preprint](#))

Timon Deschamps, Rémy Chaput, Laëtitia Matignon. Multi-objective reinforcement learning: an ethical perspective.

2023 - Submitted ([website](#), [preprint](#))

Qi Yang, Joel Jung, **Timon Deschamps**, Xiaozhong Xu, Shan Liu. TDMD: A Database for Dynamic Color Mesh Subjective and Objective Quality Explorations. Co-authored during an internship conducted at Tencent Media Lab.

Projects

GNN research project

Sep 2022 - Feb 2023

- Conducted a literature review on the state of the art in Graph Neural Networks (GNNs) and their explainability.
- Developed a user-centric ontology of the field, allowing non-experts to intuitively explore GNN explainability methods.
- Expressed the results in the form of a report and summarised it into an interactive application.

DiceWars

C++ · 2021

- Designed and benchmarked an advanced DiceWars-playing agent based on strategies utilising graph theory fundamentals.

Maze reinforcement learning

Python · 2020

- Created a graphical user interface for an interactive maze builder and visualiser.
- Developed a maze-solving agent using reinforcement learning (Q-learning).

Miscellaneous

- 2nd out of 10 teams on the inter-school Hyblab 2022 web hackathon.
- 1st out of 65 teams at the 2019 robotics challenge of the Polytechnic School of the University of Tours.

Skills

Language - French (native) · English (fluent, TOEIC 990/990, TOEFL 113/120) · Spanish (intermediate) · Mandarin (beginner, HSK-1)

Theory - Machine/Deep learning · Statistics · Probabilities · Algorithms · Data structures · Optimization · Advanced databases

Programming - Python · Keras/TensorFlow · C++ · C · PyTorch · Java · R · SQL · Javascript · OOP · Prolog · Big Data

Workflow - Git · Linux · Project Management · Agile practices · Communication · \LaTeX · Design patterns

References available upon request.