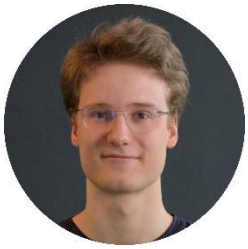

Colin Troisemaine

PhD Student, Engineer in Computer Science

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Experience

09/2021 - 09/2024 **PhD Student in Machine Learning**, *Orange Innovation, Lannion.*

- Realized a comprehensive state-of-the-art of methods for discovering novel classes (Novel Class Discovery, Clustering, Transfer Learning, and Open-World Learning).
- Developed several novel techniques to discover new classes in an unlabeled set of data, given a labeled set of data, specifically for tabular data.
- Collected and curated a dataset of real internet access faults and engineered new features.

04/2021 - 09/2021 **End-Of-Study Research Internship**, *Orange Innovation, Lannion.*

- Developed a framework that can make use of any type of classification model to generate features to improve the performance of regression models.
- Published an analysis of the results along a positioning of the SOTA in a conference paper.

06/2020 - 08/2020 **Engineering Student Internship**, *Worldline Global, Tours.*

- Developed an interpretable log generation system to simplify troubleshooting.
- *Dockerized* an application and designed integration tests for the same project.

Programming and Development Skills

Languages Python, SQL/Bigquery, LaTeX, React/Node.js/Express.js.

Tools Jupyter Notebook, Pandas, PyTorch, Matplotlib, Numpy, Scikit-learn, Git, Weights&Biases.

Publications and Projects

11/2023 Paper: “A Practical Approach to Novel Class Discovery in Tabular Data”, Preprint.
06/2023 Project: “An Interactive Interface for Novel Class Discovery in Tabular Data”, ECML 2023 Demo.
02/2023 Paper: “Novel Class Discovery: an Introduction and Key Concepts”, Preprint.
10/2022 Teaching a course on algorithms and discrete mathematics to engineering students (32 hours).
09/2022 Paper: “A Method for Discovering Novel Classes in Tabular Data”, ICKG 2022.
04/2021 Project: Comparison of active learning criterion for deep neural nets.
07/2020 Project: Playable Mario level editor with a *from-scratch* game engine in C++.

Education

2021 - 2024 **Doctor of Philosophy**, *IMT Atlantique, Brest, France.*

- Discovering Novel Classes in Tabular Data: an Application to Network Fault Diagnosis.

2020 - 2021 **Master’s Degree in Computer Science**, *Sherbrooke University, Canada.*

- Study of Machine Learning techniques, Systems and Networks, Web Applications.

2016 - 2021 **Engineering Degree in Computer Science**, *Polytech Tours, France.*

- Diploma in general computer engineering.

Languages

French (native language), English (TOEIC level C1 - Expert, 965/990 points, 2018).

Hobbies

Chess, guitar, 3D printing, FPV drone flight.