



# Colin Troisemaine

PhD Student, Engineer in Computer Science

Lannion, France 🇫🇷

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<http://colintr.me> 🌐

## Experience

- 09/2021 - 09/2024 **PhD Student in Machine Learning, Orange Innovation, Lannion.**
- Realized and extensive state-of-the-art of methods for discovering novel classes (Novel Class Discovery, Clustering, Transfer Learning, and Open-World Learning).
  - Developed multiple 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 from real internet access faults and engineered new features.
- 04/2021 - 09/2021 **End-Of-Study Research Internship, Orange Innovation, Lannion.**
- Improved the performance of state-of-the-art regressors by using random forest frameworks and/or XGBoost or an SNB.
  - 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.**
- Implemented a more easily interpretable log generation system to simplify troubleshooting.
  - *Dockerized* an application and then drafted the integration tests of 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.