

# TRISTAN COIGNION

Sustainable AI & Software Engineering researcher

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## Research Interests

I am interested in studying the environmental impact of Artificial Intelligence. Currently, I am mainly interested in the impact of using Large Language Models for code.

## Education

- 2022–present **PhD, Computer Science & Engineering**, *Inria and University of Lille*, Lille.  
Large Language Models for code, Software sustainability, Energy consumption, Green AI
- 2020–2022 : **Master of Software Engineering**, *University of Lille*, highest honours.
- 2017–2020 : **Bachelor of Computer Science**, *University of Lille*, highest honours.
- 2014–2017 **Scientific Baccalaureate**, *Institut de Genech*, highest honours.

## Publications

### In Conference Proceedings

- 2024 Tristan Coignon, Clément Quinton, and Romain Rouvoy. A Performance Study of LLM-Generated Code on Leetcode. In *EASE 2024 (Core Rank A), Proceedings of the 28th International Conference on Evaluation and Assessment in Software Engineering*, pages 79–89, Salerno Italy, June 2024. ACM. Available at <https://dl.acm.org/doi/10.1145/3661167.3661221>.

### Prepublications

- 2024 Tristan Coignon, Clément Quinton, and Romain Rouvoy. Green My LLM: Studying the key factors affecting the energy consumption of code assistants, November 2024. Available at <https://arxiv.org/pdf/2407.21579>. Under review.

## Experience

### Inria, University of Lille

- October 2022 **Studying the energy consumption of Large Language Models for code.**  
– present
  - We studied the performance of code generated by multiple Large Language Models.
  - We studied the energy cost of using a code assistant like GitHub Copilot with human participants. We proposed a dataset of development traces, as well as a novel methodology to evaluate the energy consumption of code assistants.
  - We studied the optimization of code using LLMs as well as the cost of the optimization (Work In Progress).

Advisor **Prof. Romain Rouvoy**, Full Professor, University of Lille ([Personal Webpage](#))  
Advisor **Prof. Clément Quinton**, Associate Professor, University of Lille ([Personal Webpage](#))

October 2022 **DISTILLER ANR Project contribution.**  
– present Contributed to the [DISTILLER ANR project](#). My work focused on recommender systems for more sustainable software artifacts.

### Boavizta

December 2024 – present **Active member of the association.**
  - I contributed to the [BoAmps project](#) (WIP). This project aims at providing a common model for reporting energy consumption metrics related to AI usage.

## Others

2020 – 2022 **Software engineer**, *Glaz Tech+Fi (defunct)*, Lille.  
Software development on the Salesforce Platform for finance users. Team and project management.

## Posters and presentations

- 2025 **Poster - Green My LLM: Studying the key factors affecting the energy consumption of code assistants**, *Green Days 2025*, Rennes, [[Poster](#)].
- 2025 **Green My LLM: How much does your copilot eat?**, *GT-GLIA 2025*, Rennes, [[Slides](#)].
- 2024 **A performance Study of LLM-Generated Code on Leetcode**, *EASE 2024 (Core Rank A)*, Salerno, [[Slides](#)].
- 2024 **A performance Study of LLM-Generated Code on Leetcode**, *Green Days 2024*, Toulouse, [[Slides](#)].

## Computer skills

Programming Languages Python (Pandas/Polars, Matplotlib, Scikit-learn), Java, C, C++  
Web Technologies HTML 5, Javascript, CSS, React

## Services

### Teaching at the University of Lille

- Spring 2025 **Distributed systems (27h)**, Microservice architecture, software resilience, fault tolerance, etc..
- Spring 2024, **Operating system architecture (36h)**, Understanding how a kernel works and implementing a process scheduler from scratch in C.
- Fall 2024 **Object oriented conception (18h)**, Java programming, design pattern, software design.
- Fall 2023: **Introduction to web development (31.5h)**, HTML5, CSS, JS.

### Reviewing

- 2025 **Software: Practice and Experience.**
- 2025 **IEEE/ACM International Conference on Software Engineering.**
- 2024 **ACM Transactions on Software Engineering and Methodology.**

## References

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