TRISTAN COIGNION

Sustainable AI & Software Engineering researcher

(+33) 788023468
tristan.coignion@gmail.com
https://saauan.github.io/
Github Linkedin

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

2022–2025 **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

2025 Tristan Coignion, Clément Quinton, and Romain Rouvoy. When faster isn't greener: The hidden costs of llm-based code optimization. In *ASE 2025 (Core Rank A*) (to be published)*, 2025.

2024 Tristan Coignion, 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 Coignion, 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 – 2025 ***Studying the energy consumption of Large Language Models for code***.
- 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.

Advisor **Prof. Romain Rouvoy**, *Full Professor, University of Lille* (*Personal Webpage*)

Advisor **Prof. Clément Quinton**, *Associate Professor, University of Lille* (*Personal Webpage*)

October 2022 – 2025 **DISTILLER ANR Project contribution**.
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, 2025 **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

Prof. Romain Rouvoy
Full Professor, Department of Computer Science
University of Lille
✉ romain.rouvoy@univ-lille.fr

Prof. Clément Quinton
Associate Professor, Department of Computer Science
University of Lille
✉ clement.quinton@univ-lille.fr