
Large Language Models and Ecolinguistics: co-creating an ecological future

Martina Russo*^{1,2,3}, Jorge Vallego*^{†4,5}, and Eleanor Tiernan*^{‡4,5}

¹Alma Mater Studiorum Università di Bologna = University of Bologna (UNIBO) – Via Zamboni, 33 -
40126 Bologna, Italie

²University of Leicester – University Rd, Leicester LE1 7RH, Royaume-Uni

³Leverhulme Centre for Humanity and Space – Royaume-Uni

⁴University of Gloucestershire [Cheltenham] – Cheltenham, GL 50 2RH, Royaume-Uni

⁵the H4rmony project – Royaume-Uni

Résumé

Ecolinguistics (Fill & Penz 2018; Stibbe 2021) examines how linguistic practices shape human relationships with the living world, and it increasingly confronts questions about how emerging technologies may reinforce or challenge current socio-ecological trajectories (Cowley 2024; Stibbe 2021; Zheng et al 2024). Large Language Models (LLMs) have rapidly become embedded in academic and professional practice (Bharathi 2024; Hanyi et al 2024), generating new possibilities for discourse analysis while contributing to substantial environmental costs, including energy consumption and water use (Strubell et al 2019). Within this context, the integration of AI into ecolinguistic research represents a critical intervention point: if deployed responsibly, AI-assisted ecolinguistic methods may help cultivate more sustainable and ecologically attuned narratives (Stibbe 2024) – yet, as recent reviews suggest (Steffensen 2024) explicit engagement with AI remains scarce in ecolinguistic scholarship.

This workshop invites participants to collaboratively explore how LLMs can support ecolinguistic inquiry without reproducing extractive technological paradigms, and it is divided into three parts, delivered by three experts. In Part 1, Eleanor Tiernan will demonstrate the potential issues in classifying ecolinguistic texts using existing Large Language Models. She will show where current tools fail, why they misclassify or oversimplify ecological meanings, and how these issues highlight the need for more ecologically attuned models. In Part 2, Martina Russo will conduct an ecolinguistic analysis comparing outputs from Theophrastus (an ethically and ecologically-oriented model) with those from mainstream models such as ChatGPT 5.0. She will illustrate how different systems interpret texts, identify anthropocentric patterns, and show where value alignment with the ecological philosophy (Living!) makes a measurable difference in the analysis. In Part 3, Jorge Vallego will explain how ethically aligned AI models and platforms can be built. He will outline the principles behind value-sensitive model design, demonstrate how ecological values can be embedded through fine-tuning, and show how systems like H4rmony provide a more responsible and sustainable tool for ecolinguistic research.

By engaging with multilingual data and encouraging participants to test, question, and reimagine AI-supported ecolinguistic methods, the workshop aims to open a shared, creative

*Intervenant

[†]Auteur correspondant: jorge.vallego@theh4rmonyproject.org

[‡]Auteur correspondant: eleanortiernan@gmail.com

space for reflecting on how digital tools might contribute to sustainable and justice-oriented futures. Participants will leave with practical skills, critical insights, and collaboratively developed strategies for using LLMs in ways that remain faithful to ecolinguistic principles and attuned to ecological care.

Mots-Clés: AI, assisted ecolinguistics, ecologically aligned language models, AI environmental ethics