IMPLANTEUS
SUSTAINABLE MEDITERRANEAN AGRICULTURE FOR HEALTH | GRADUATE SCHOOL

MAFEN MASTER **Academic Year 2026 - 2027**

Proposal of M1 tutored project

PROJECT TITLE AND SUMMARY:

Optimizing priming and stress memory using artificial intelligence: predicting timing, intensity, and memory decay

In this tutored project, you will prepare a mini-literature review focusing on how artificial intelligence (AI), machine learning (ML), and deep learning (DL) can be used to optimize plant priming and stress memory strategies by predicting the optimal timing, intensity, and decay of stress memory. The objective is to explore how computational models can anticipate stress events, quantify memory retention, and guide priming interventions that enhance resilience under complex environmental conditions. You are expected to search for and critically analyze recent peer-reviewed publications covering ML and DL approaches for stress prediction, multi-omics integration for modeling memory dynamics, mathematical and AI-based modeling of memory-decay curves, and predictive frameworks for combined stress scenarios such as heat × drought × UV. You may also examine applications in precision agriculture, including AI-driven decision-support systems, sensor-based monitoring, and predictive priming schedules. The mini-review should include a clear introduction to the topic, a structured synthesis of selected studies, a critical discussion comparing different methodological approaches, and a short section outlining future perspectives for AI-guided priming strategies in agriculture.

HOST UNIT: ERIT – PSII (Plant Sciences Interactions and Innovation), IAgES, Avignon University

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