PhD Thesis Project Offer

(valid during the calendar year 2025)

Provisional Title of the Doctoral Thesis

Generative AI for metaheuristic algorithms design and configuration to solve optimization problems

Subject area* / Research line

Ingeniería y Arquitectura / Ciencia de la Computación e Inteligencia Artificial

(Artificial Intelligence, Optimization, Metaheuristics)

Summary of the Doctoral Thesis (maximum 300 words)

The aim of this PhD project is to establish a new methodology where generative AI engines are integrated into the process where metaheuristics are designed and configured to tackle optimization problems. In this way, different optimization problems will be studied as testbench for the methodology.

Is the development of this thesis associated with the execution of any research project? If so, provide details of the project (title, funding entity, and execution period)

This thesis is associated to a new project titled “Improving the holistic methodology for configuration, comparison and evaluation of metaheuristics (HOMERO II)”, which has been submitted and is pending of funding.

Academic Profile of the Student (maximum 200 words)

Computer Science and/or Mathematics degree. Programming skills and algorithmic background are required. Java and Python languages are also required.

Contact: institutional email of the Supervisor

josemanuel.colmenar@urjc.es

Institutional Website of the Supervisor

https://gestion2.urjc.es/pdi/ver/josemanuel.colmenar

*See the Subject Areas at https://www.urjc.es/informacion-practica#oferta-proyectos-de-tesis.
Each project will be included in a single subject area.