

Declaration of Originality

I hereby declare, under my own responsibility, that the Project submitted under the title **Anomaly Detection in Catenary Components of Railway Systems Using Inspection Images and Deep Learning Algorithms** to the School of Engineering – ICAI of Universidad Pontificia Comillas during the 2025/2026 academic year is my own work and has not been previously submitted for any other purpose. The Project does not constitute plagiarism, either in whole or in part, and all information taken from other documents has been duly referenced.

Use of Artificial Intelligence¹

I hereby declare, under my own responsibility, that:

I have not used Artificial Intelligence in the preparation of this document.

I have used Artificial Intelligence in the preparation of this document and/or Annex B, always under the conditions permitted by Universidad Pontificia Comillas, applying Level 2 of the [Escala de Evaluación de Perkins et al. \(2024\)](#): “*AI may be used for pre-task activities such as brainstorming, outlining, and initial research. This level focuses on the use of AI for planning, synthesis, and idea generation, but assessments must emphasize the ability to develop and refine these ideas independently*”. Specifically, Artificial Intelligence has been used as:

Artificial Intelligence has been used as a support tool during the development of this work, mainly for initial planning, organization of ideas, structuring of some sections, synthesis of technical information, and improvement of academic writing and clarity.

It has also been used to review the coherence of the text and to help express certain explanations more precisely. In all cases, the analysis, interpretation of results, methodological decisions, and final conclusions have been developed independently by the author, who assumes full responsibility for the submitted work.

¹ This declaration refers to the use of generative Artificial Intelligence in the preparation of the Project documents, namely Annex B and the main report. It does not apply to Projects in which, due to their nature, Artificial Intelligence must be used as an integral part of the work, such as the application of machine learning techniques, neural networks, data analysis, and similar methods.



Signed (student): Lucía Martínez Ruiz

Date: 27 of May 2026

Authorization for the Submission Project

| The Director of the Project | The co-Director of the Project (if applicable) |
|--------------------------------|--|
| | |
| Signed: Miguel Ángel Sanz Bobi | Signed: |
| Date: | Date: |