

Title: 3 year Fully Funded PhD Student Position in Explainable Artificial Intelligence for Predictive Maintenance.

- **Institution:** Cergy Paris University and ENSEA
- Research Laboratory: ETIS lab
- **Location:** Cergy-Pontoise, France
- Duration: 3 years
- **Start Date:** as soon as possible

Position Overview

We are excited to announce an opening for a highly motivated PhD student to join our dynamic research team DATA&AI (ex MIDI team) at the ETIS laboratory of the CY Cergy Paris University and the ENSEA school of engineering. The successful candidate will focus on developing explainable AI methods for predictive maintenance within digital twin systems and smart spaces. Predictive maintenance in industrial settings spans from identifying anomalies and categorizing failures in already observed data, to prognostically predicting the Remaining Useful Life (RUL) and the Failure Time (FT) of machines, appliances, etc, in the future (Pashami, Sepideh, et al. "Explainable predictive maintenance." arXiv preprint arXiv:2306.05120 (2023)). Typically such predictive tasks are based on Artificial Intelligence and/or statistical analysis techniques, which may be complex to interpret.

In this project we aim to aid the different stakeholders make more insightful decisions about the forecasted failures by providing context-aware explanations for the RUL and FT prognostic tasks. In this way, we will enhance the reliability and transparency of predictive maintenance models in industrial scenarios by leveraging continuous data streams, state-of-the-art AI techniques and innovative causal and actionable explainability methods.

The PhD position is funded by the prestigious EU Horizon PANDORA project, A Comprehensive Framework enabling the Delivery of Trustworthy Datasets for Efficient AIoT Operation, gathering 20 academic and industrial partners and thus providing a unique opportunity to contribute to cutting-edge research with significant real-world impact.

Qualifications

- A Master's degree (or equivalent) in Computer Science, or Applied Mathematics.
- Strong background in at least one of the following fields: machine learning, data management, statistics.
- Proficiency in programming languages such as Python, and/or R.
- Excellent analytical skills with a focus on problem-solving.
- Strong communication skills and the ability to work collaboratively in a team environment.
- Ability to work autonomously and proactively.
- Proficiency in English, both written and spoken.

Application Requirements

- A cover letter detailing your motivation for applying and how your background aligns with the position.
- A comprehensive CV including your academic background, research experience, and publications (if any).
- Copies of academic transcripts.
- Contact details for at least two academic or professional references.
- A sample of your academic writing (e.g., thesis, research paper).

How to Apply

Please submit your application as a single pdf to aikaterini.tzompanaki@cyu.fr and Vassilis.Christophides@ensea.fr with the subject line "PhD Application: Explainable AI for Predictive Maintenance in Digital Twins."

Supervisors

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