AI-Enhanced Digital Twin for Predictive Monitoring

Offer

Contract Type: Internship

Location: Paris suburbs – Massy (91)

Publication date: 09/10/2025

Contact: contact@spacedreams.com

About SpaceDreamS

Founded in 2021 and based in Paris and Toulouse, SpaceDreamS are spaceport architects. The company's mission is to enhance the competitiveness of launch systems by developing interoperable and modular launch pads. SpaceDreamS provides turnkey ground solutions for launch vehicles and spaceports, aiming to reduce the cost and time to access space.

A multiple laureate of the France 2030 program, SpaceDreamS is supported by the DGA, CNES, and ESA to foster the growth of its clients in France and Europe.

We are developing NuPad (Next-generation Universal Pad), the first interoperable launch pad adaptable to any type of launch vehicle, at various lifecycle stages, and capable of being transported between certified launch sites.

The TwinPad is the digital twin of the ground launch system. It facilitates the development of launcher and launch pad operational software, as well as virtual and real-time simulation of cryogenic, electrical, and mechanical fluid processes.

SpaceDreamS is also conducting preliminary studies on the development of ground support systems for several mini and micro launchers.

Role

As an AI & Digital Twin Intern, you will be at the forefront of integrating simulation models, real-time data, and machine learning methods to create predictive digital twins for aerospace and fluid systems.

- Working closely with the simulation, AI, and engineering teams, you will be responsible for:
- Designing a modular digital twin framework that integrates simulation models with OPC UA-based real-time data streams.

- Training and validating AI/ML models (autoencoders, forecasting models, supervised classifiers) for anomaly detection and predictive monitoring.
- Developing adaptive feedback loops to refine simulation models with insights from data.
- Applying the methodology to a representative case study (e.g., cryogenic tank pressurization or valve control system) and benchmarking detection accuracy.
- Producing deployment guidelines to scale the digital twin approach across operational systems.
- Documenting the framework, case studies, and AI validation results.

This role offers you the opportunity to contribute to next-generation operational tools that improve safety, reliability, and efficiency of test facilities and fluid systems, while gaining practical experience in combining simulation with AI.

Profile

Qualifications

- Currently enrolled in a Master's program / Engineering School in Aerospace Engineering, Computer Science, Data Science, or Applied Physics.
- Solid foundation in simulation methods, thermodynamics, and control theory.
- Good knowledge of machine learning concepts and time-series analysis.
- Curiosity and motivation to work on interdisciplinary projects at the interface of physics and AI.
- Understanding of fluid mechanics and thermodynamics,
- Good analytical and organizational skills, as well as a great adaptability,
- Ability to work effectively in a multidisciplinary team,
- Technical writing skills in English (presentation, reports, or project documentation),
- Motivation for learning / practicing new software and tools.

Preferred Qualifications

- Engineering degrees with a concentration in AI, Data Science, and Computer Vision
- Familiarity with OPC UA and communication protocols for real-time data exchange.

- Proficiency in Python and ML frameworks such as TensorFlow, PyTorch, or scikit-learn.
- Knowledge of anomaly detection methods, ROC curve evaluation, and predictive maintenance strategies.
- Interest in digital twins, predictive analytics, and space system applications.
- Familiarity with cryogenic fluids and / or space fluid system design is a plus,
- Interest in space exploration and staying up to date on space-related news,

We offer

The opportunity to be part of a unique human and technical adventure within a diverse and experienced team.

- A chance to build the digital twin of real space ground infrastructure,
- The opportunity to be part of a unique human and technical adventure within a diverse and experienced team.
- Direct exposure to systems designed in the industry, especially for clients from the New Space sector.
- The opportunity to shape the design process of ground fluid systems by contributing to advanced AI and digital twin methodologies.
- Daily collaboration with a passionate team of engineers working on fluid, control, and mechanical systems, as well as launch operations.
- A structured mentorship environment with room for technical growth, autonomy, and meaningful contribution.
- A culture that values clarity, curiosity, and engineering as a team sport.

Internship Conditions

- **Duration**: 6 months
- **Start Date**: Flexible start between Jan – March 2026
- **Location**: Massy, France – Our offices are 20mins away from Paris by public transport
- **Compensation**: 1200€ gross

Interested?

Send your CV and cover letter to contact@spacedreams.com