About the job

Welcome to GScan 👋

We are an award-winning Deeptech company from Estonia, pioneering the future of non-destructive testing (NDT) and structural health monitoring. Our **muonFLUX© technology** uses cosmic rays to "see" inside critical infrastructure—such as bridges and tunnels—detecting corrosion and hidden defects with unprecedented clarity.

Think of it as a "CT Scan" for the built world. Just as medical imaging uses X-rays to see inside the human body, GScan utilizes naturally occurring particles (muons) to penetrate meters of concrete and steel. This allows asset owners to make proactive, data-driven decisions to maintain safer and more sustainable infrastructure.

Why GScan?

At GScan, you will work on Physical AI.

- **The Challenge: 3D Inverse Problem**—reconstructing 3D volumes from sparse, high-entropy particle tracks. This presents a complex inverse problem that standardized machine learning frameworks are not designed to resolve.
- **The Impact:** Your models will directly prevent infrastructure failure and reduce CO2 emissions by extending the life of existing structures.
- **The Growth:** We are a mission-driven team of 50+, supported by over €18m in combined seed investments and grants.

✅ Your Mission as an AI Engineer

Your goal is to turn the raw behaviour of cosmic ray shower into actionable 3D models of things deep inside concrete or beneath the earth. You will be the bridge between particle physics, 3D reconstruction and business value.

- Perform exploratory data analysis (EDA) on complex scanner data to uncover patterns, anomalies, and opportunities for improvement
- Experiment with both established and unconventional DS/ML approaches, proposing out-of-the-box ideas and testing them.
- Apply stochastic denoising and unsupervised physics-informed ML to our 3D imaging pipeline. The goal is to ensure reconstruction accuracy by embedding physical laws directly into the learning process to handle noise.
- Iteratively refine hypotheses and test assumptions, moving from a "blank page" to production-grade code.
- Write efficient, well-documented code in **Python** and participate in technical code reviews.

✅Qualifications

Nobody is perfect, and we don't expect you to be either. You're likely to succeed if you meet 80% of the criteria:

- Solid understanding of data science and machine learning fundamentals.
- Hands-on experience with Python for data work (NumPy, pandas, matplotlib/Plotly, scikit-learn or similar)
- Experience in designing custom ML architectures for non-standard problems.
- Strong Math: Grasp of probability theory, linear algebra, and geometry.
- Curiosity: Willingness to explore creative approaches where standard libraries reach their limits.
- Software Engineering: Comfortable with version control, testing, and extending existing codebases.
- Ability to quickly grasp new concepts in particle physics and hardware constraints.

Beneficial Interests: Inverse problems, Unsupervised ML, Hardware, Physics, Statistics.

What makes working at GScan unique?

Physical AI: Work on revolutionary solutions that transform the safety of critical infrastructure and dramatically cut global CO2 emissions.

The Greenfield advantage: Shape industry standards in a deep-tech field where the "playbook" hasn't been written yet. Your decisions will define our technical roadmap.

Multidisciplinary team: At GScan, AI doesn’t live in a silo. You’ll work directly with our physicists and hardware teams to ensure your models are deeply rooted in the physical reality of the data.

International & diverse: We are an equal-opportunity employer and value diversity at our company. We do not discriminate based on race, religion, color, national origin, gender, sexual orientation, age, marital status, or disability status.

Join GScan and help shape the future of scanning technology. If you want to build something novel that the world has never seen, we’re waiting for you 🤝