



Graduation internship: Invisible Nonlinearities

Construct a model for monitoring fatigue crack growth and validate it with real data!

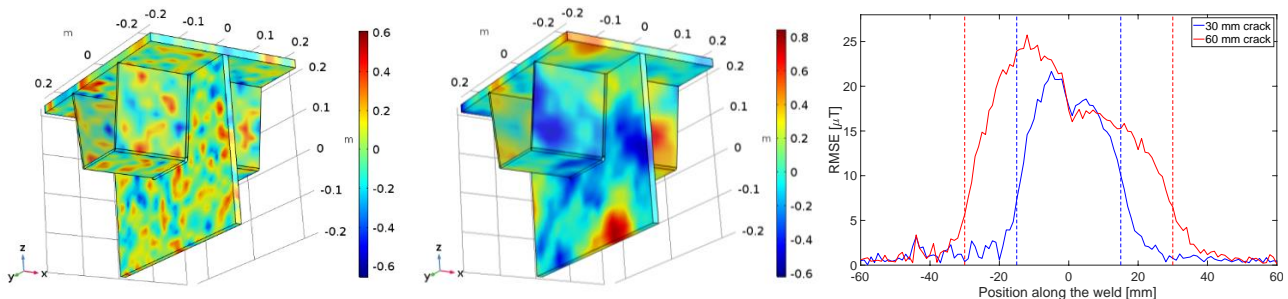
Internship duration: 6-9 months

Your profile: Affinity with complex engineering, e.g. Python/Matlab/Comsol...

Internship start: Q4 2020 / Q1 2021

About Villari

Villari delivers a revolutionary service with the continuous monitoring of damage accumulation in steel assets using advanced wireless sensor nodes. Our [RedFox](#) sensor nodes produce detailed data which are translated using algorithms to meaningful parameters such as crack length, depth and propagation speed, which is periodically reported to our clients. Villari provides this service to industries such as public infrastructure, heavy lifting, and offshore. With permanent monitoring, asset owners can benefit greatly by reducing labour-intensive manual inspections, reducing asset downtime and accurately predicting when maintenance should be executed. Please refer to <https://villari.nl> for more information.



The assignment

The assignment will consist of a few steps: initially you will familiarise yourself with the physical principles behind our sensor technology. Then you will be taught how to model these physical principles using finite element analysis software. This is followed up by building a model which shows how the physical properties of the material change, when crack growth starts to occur. This model is then validated and fine-tuned using real-world data and/or laboratory data which you've generated yourself. It is a challenge, but surely a rewarding one, and you will be supported along the way!

Your activities

- Familiarising yourself with the complex physical principles behind our technology
- 3D modelling of physical phenomena
- Modelling fatigue crack propagation in steel structures
- Play a key contributing role for the continued development of our revolutionary monitoring system

You

- Are an academic graduate (physics / engineering / ...)
- Have some experience with Python / MATLAB / COMSOL / or similar
- Are not afraid of diving into new, complex physics
- Are available for a minimum of nine months (full time, 4 d/w negotiable)
- Are excited to join a young, rapidly expanding team!

Applications

Please apply by sending your resume and a short motivation to mail@villari.nl