



Master's Thesis

Real or Fake? – Generate Synthetic Image Data to Improve Training of AI Algorithms

Description

We, at the Department of Diagnostic and Interventional Radiology (University Hospital Aachen), have worked extensively on using generative models to generate synthetic X-rays (GANs, Diffusion Models, Variational Autoencoders). You will build on this work and extend it with the goal of using these synthetic images to improve training of AI algorithms. By doing so, you will help overcome the 'data sharing problem' that stands in the way of larger-scale usability of AI algorithms - real patient data cannot be shared, while synthetic data can.

Your Profile

- Physics or engineering student with good grades;
- Familiarity with programming in Python (ideally PyTorch);
- A strong interest in and excellent general understanding of AI methods.

What we Offer

An interdisciplinary environment with medical doctors, post-docs in physics, and PhD candidates in engineering and physics. The machine learning group is led by PD Dr. med. Dipl.-Phys. Daniel Truhn (Radiologist and Physicist) and PD Dr. med. Sven Nebelung (Radiologist). Our research group is characterized by mutual support, close supervision, and regular scientific meetings.

Whom to Contact

Interested? Please get in touch via e-mail at snebelung@ukaachen.de or dtruhn@ukaachen.de. We are looking forward to hearing from you.

