

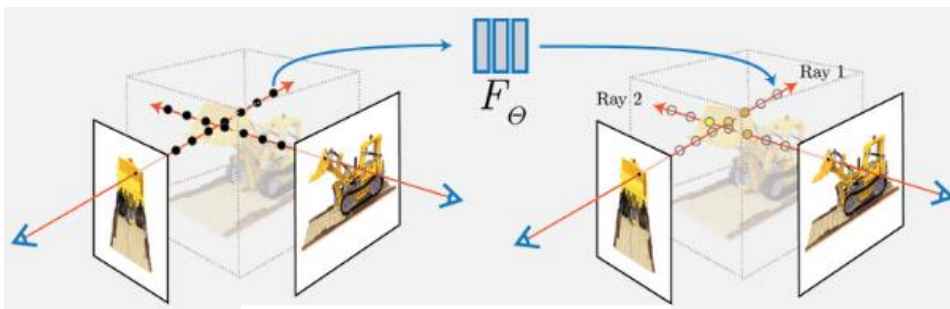
BACHELOR OR MASTER THESIS

Deep Volumetric Rendering using NeRF in Logistics

Computer vision and machine learning technologies are very promising for solving complex problems in the context of logistics. Recently, view synthesis by representing scenes as neural radiance fields (NeRF) has gained a lot of attention and shows promising results (e.g. check [matthewtancik.com/nerf](https://www.matthewtancik.com/nerf)). The focus of this work is on transferring these results into the area of Logistics by applying it to parcel data. This view synthesis, i.e. the 3D model of a parcel, allows very detailed inspection and comparison of parcels along the supply-chain and thus, can be used for damaged and tampering detection.

YOUR RESPONSIBILITIES

- In-depth literature review in the fields of perception in logistics and NeRF-type deep learning architectures
- Implementation and fine-tuning of NeRF
- Evaluation of the methods on real data including feasibility study for the application



See <https://www.matthewtancik.com/nerf>

OUR OFFER

- continuous and thorough mentoring of the student
- highly motivated and fun team and constructive cooperation

YOUR PROFILE

- high self-motivation and eager to contribute own ideas
- willingness to learn and the ability to work independently
- good programming skills in Python
- basic theoretical knowledge in Machine Learning
- very good knowledge of German or English

APPLICATION

We look forward to receiving your PDF application to Alexander Naumann (anaumann@fzi.de). Please write a short, informal cover letter including the desired start date and add the following documents:

- curriculum vitae
- current transcript of records
- if applicable, further relevant certificates (internships, student jobs, etc.)

FURTHER INFORMATION

- Start date: flexible
- Responsible Institute at KIT: Institut für Fördertechnik und Logistiksysteme (IFL) | Prof. Dr. Furmans
- Contact: Alexander Naumann (www.fzi.de/mitarbeiter/alexander-naumann)
- For related offerings, please see <https://a-nau.github.io/thesis>