Luna Fredenslund

lunais.me

Work Experience

2024 – 2025 | **AAU - REPAI**
Human Object Interaction and Action Detection extensions to thermal images.

2018 – 2021 | **Capra Robotics**
- Built an E2E robot-demo that can track and follow a specific person using a fine-tuned object detection model on a RGB-D camera feed.
- Explored augmentation of semantic segmentation models for fisheye data.
- Derived kinematic equations for custom wheel frame, and developed proof of concept for 3D odometry algorithm that reduces drift in uneven terrain.

Education

Expected 2025 | **B.Sc. Physics University of Copenhagen**

Research

2023 – 2024 | **Steinhardt Group: Increasing Efficiency of Space Telescopes**
I am investigating if we can use more complex filters to reduce the total number of filters needed to estimate properties of galaxies making observations faster.

2022 | **Steinhardt Group: Investigation of Novel Star-formation Mechanisms**
Measured temperature of dust clouds to understand mechanisms behind unexplained star formation.

2020 – 2021 | **Steinhardt Group: Investigation of Hubble Constant Tension**
Reduced data from NOT to estimate redshifts of galaxies compared with previous measurements found systematic biases.

2018 – 2019 | **Bjoerk Group: Reverse molecular modelling**
Developed a proof of concept dense low parameter kernel to increase the resolution of the reinforcement learning agent reducing the number of parameters by up to 90% with minimal performance impact.

Extra Curricular Activities

2022 – 2023 | **Learning Platform: njoror.com**
Conceptualized and developed an individualized mathematics tutoring platform.
- Learns each student's ability and learning style to generate a unique learning path.
- Developed custom DSL to program problem templates, and evaluate symbolic mathematical expressions.

2018 | **Higgs Detection Neural Network**
Developed a neural network that classifies Higgs-$\tau\tau$ *decays based on simulation of the ATLAS detector.*
- Finalist at INTEL ISEF 2019.
- Won CERN prize at EUCYS 2018.
- Won Physical Science at Young Scientists Denmark 2018.

Other Extra Curricular Activities

2024 | **Open Innovation 2024 Sustainable Cities**
Working with formal methods for innovation and accessibility, we analyzed accessibility requirements for the CPH Metro, identified areas of improvement, developed a solution, and pitched it to the Metro Company.

2022 – 2025 | **Gifted Institute: gifted-institute.com**
Developed, host, and maintain informational website to client specification.

2021 | **Taught Online Class**
Voyager II orbital path reconstruction

- Basic Python scientific libraries: Numpy, Scipy.
- Numerically solve 2nd order ODEs.
- Classical orbital mechanics.

2019 – 2023 | **Volunteer at Unge Forskere**
Helped facilitate judges and contestants at the yearly finale spanning 3 days held alongside ScienceEXPO. Was a preliminary judge in the junior group, and have been judge for the communication prize.

2019 | **Aarhus Critical Care Datathon**
Investigated explainability of x-ray classification deep learning models. Found signs that the models were relying on spurious data.

2019 | **Consent Management Platform: cookiecook.io**
Conceptualized and developed a service that manages user consent in relation to GDPR on websites.

Miscellaneous

Technologies
Proficient: Python Tensorflow Pytorch Scipy Matplotlib Sklearn Numpy ROS
Adequate: C++ Matlab Javascript Django Pandas

Languages
English (proficient) Danish (native)

Interests
Art Photography Cooking Nature Running