

Sieuwe Elferink

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SUMMARY

I am an embedded systems student with deep understanding of Artificial Intelligence (AI) and Computer Vision (CV) techniques. I have experience in applying AI and CV techniques to create advanced autonomous robotics and inspection systems ranging back to 2016 where I started learning new concepts from online tutorials. After learning a new technique, I applied it in the real world in the form of a self-made project. After each project I documented the process which can be found on my website and GitHub. During this time, I have learned to independently learn new concepts and think outside the box to solve complex problems.

My most noteworthy projects are a fully autonomous vehicle for public roads using End-2-End AI techniques and a self-build hexacopter capable of autonomous obstacle avoidance and person tracking also using custom designed End-2-End AI models. Also, I have worked on an inspection system capable of finding manufacturing anomalies in high tech electronic products and I have worked on large crowd monitoring using cameras. I find projects combining AI and CV to research and develop (R&D) cutting edge autonomous robotic systems the most exciting.

During high school I followed the bilingual course and achieved the International Baccalaureate (IB) certificate which means I can think critically and express myself in the English language. I have experience with working and collaborating with colleagues in large teams using my social skills. I can present work I have done, and I am not afraid to ask questions to learn more. Collaborating with likeminded colleagues in an agile workflow is my preferred working environment.

COMPUTER SKILLS

- Excellent in: **C#, Python**, Good in: **C++, Java**
- Excellent in **Computer Vision**: OpenCV. Excellent in **Artificial Intelligence**: Creating data set's, Training & Validation pipeline's, Implementation in Keras(TensorFlow), End-2-End models, Variational Auto Encoders, YOLO. Good with **Technologies**: ROS, SLAM, PID control, Point Clouds, CUDA, Git.
- Excellent in **Robotics**: Quad Copters, Autonomous vehicles, Electronics, 3D cameras, LiDAR. Excellent in **Practical Application**: Soldering, Assembling, 3D printing, Repair, Trouble shooting. Good with **Hardware Design**: SolidWorks, NX, KiCad. Good with **Embedded Platforms**: ARM, AVR (Arduino).

SOFT SKILLS

- Excellent in: **English** spoken and written. Excellent in: **Dutch** spoken and written.
- Excellent in: Teamwork, Collaboration, Documentation, Kickstarter. Good with: SCRUM / Agile

EXPERIENCE

Autonomous System's Engineer

2020 - 2021

Delta Honored Student Program at Fontys, University of Applied Science

- Researched and build a custom hexacopter platform for autonomous experiments.
- Implemented a fully autonomous navigation system for tracking a moving target using camera and lidar data.
- Implemented a fully AI based End-To-End autonomous navigation and obstacle avoidance system for navigation on multi-rotors between GPS points.

Production Engineer 2019 - 2021

Prodrive Technologies

- Researched the possibilities and technologies for using 3D data to automatically inspect if high tech electronic products are assembled correctly.
- Implemented an automated anomaly Inspection system using a voxel-based Variational Auto Encoder and point cloud data.

Video analytics Engineer 2018 - 2019

Open Remote

- Researched and implemented an object detection model with a sorting algorithm for large video-based crowd detection
- Developed algorithms for large crowd analytics using object detections

Telemetry System Engineer 2018 - 2020

University racing Eindhoven (Student Team)

- Developed a mechanical steering system for the URE14E electric race car
- Developed and implemented a universal real time Telemetry System

EDUCATION

Fontys, University of Applied Science 2018 - present

Eindhoven, Brabant

- HBO Bachelor Computer Science.
- Enrolled in the student honor program Delta.
- Enrolled in University Racing Student Team Eindhoven

Farel Academy 2012 - 2018

Amersfoort, Utrecht

- Achieved: General secondary education (HAVO).
- Achieved: International Bacculaureate (IB) certificate for English.
- Enrolled in Socrates International Honor Society

HOBBIES

After school I mostly start working on my own projects. These projects range from voice-controlled electronics to self-driving vehicles. When a project is finished, I make a YouTube video, documentation and upload the code to GitHub so everyone can try it for themselves. By doing this I have achieved 1800+ YouTube subscribers and over 130 GitHub stars. This process has helped me develop excellent documentation skills. Besides doing projects I also try to push my personal limits with action sports. I do motocross and finished second in the Dutch downhill competition with downhill mountain biking. Any repairs on my dirt bike, mountain bike and electronics like my smartphone are performed by myself. This helped me develop excellent practical and troubleshooting skills. These skills have also helped my enterprising desires by running my own business in buying broken machines like scooters and dirt bikes and selling these for a profit once repaired.

