Max Waterhout

Purmerend, Netherlands   (+31) 655680141   06-09-1998

maxwaterhout@outlook.com   www.linkedin.com/in/max-waterhout/
https://maxiew123.github.io/website_freelancer

As a robotics engineer, I possess knowledge of mechanical engineering, but my primary interest lies in data science, specifically with a specialization and passion for machine learning. A full overview of my professional path and additional projects can be found at my website: **https://maxiew123.github.io/website_freelancer**

Experience

Apr 2024 -present
Max AI Solutions– *AI Freelancer*

As an AI freelancer my goal is to continually expand my knowledge and expertise in AI and having complete knowledge of an efficient full machine learning pipeline (MLOps) and to leverage this expertise to assist various companies.

Feb 2024 - -
Invaro Group (AKOS), Hoorn – *Machine learning Engineer*

From working at Engineering & Consultant Office AKOS, I was positioned at Invaro Group in Hoorn with the role of machine learning engineer. In this role, I concentrated on enhancing the vision systems for potato sorting machines and flower processing machines. My responsibilities included developing new deep-learning models, modernizing existing models with cutting-edge training techniques, and optimizing scripts. Additionally, I provided consultancy on various MLOps systems, such as model versioning, data versioning, and training versioning.

May 2023 - Feb 2024
Technical University of Delft, Delft – *Master thesis*

In my thesis, I developed a chess-playing robot using an RGB or RGB-Depth camera. The key aspect involved training a 6D pose estimation model through deep learning techniques, utilizing a custom synthetic dataset crafted from 3D scans of chess pieces. Furthermore, I created a validation dataset containing real-world data to assess the efficacy of my models to evaluate the Simulation to Reality gap. The thesis also carried out a comparative analysis of the results from 6D pose estimation models, differentiating between those based on RGB and RGB with depth refinement. Additionally, the research includes an evaluation of a robotic arm's picking capabilities on the small chess pieces utilizing the trained models. The complete thesis can be read at: Evaluating 6D pose estimation accuracy with synthetic data | TU Delft Repositories (https://repository.tudelft.nl/islandora/object/uuid%3A4506c969-220d-4257-ad5b-91853ea83ccb?collection=education)

February 2023 - May 2023

Technical University of Delft, Delft – *Literature study*

I conducted a comprehensive literature review on the topic of how depth information impacts 6D pose estimation for priori known objects at varying camera distances.

September 2022 - October 2022

Police, Amsterdam – *Internship Data Scientist*

In my role at Team Efficiency Operational Information, I successfully designed and implemented a video classification system for analyzing seized videos. This system identifies and categorizes specific content, such as identifying videos related to guns or money laundering from vast collections of videos extracted from seized devices, including telephones with thousands of recordings.

June 2022 - September 2022

BIS publishers, Amsterdam – *Data analyst*

During my employment, I contributed to data analysis efforts, gaining valuable insights from incoming data. Notably, I played a role in enhancing stock management and predicting future book sales.

September 2019 - August 2020

Hörmann, Alkmaar – *Junior Engineer R&D*

During my tenure, I actively participated in an R&D project team at Hörmann Alkmaar, with the primary objective of expanding and enhancing the product portfolio. My focus was mostly on a project where a blocking system for trucks was developed. My involvement spanned the entire research-to-prototype journey, encompassing diverse tasks such as CAD programming, FEM calculations, hands-on construction of prototypes, and effective communication with clients and colleagues. I am proud to highlight that in October 2022, the successful completion of this project resulted in the launch of the Radblockiersystem MWB2 (

▶ Radblockiersystem MWB2 - Mehr Sicherheit an der Verladestelle | Hörmann)

January 2019 - May 2019

Holland Mechanics, Purmerend – *Internship Mechanical Engineer*

Engaged in the enhancement and expansion of 'The Pro Truer,' a bicycle wheel machine, by improving existing functions and introducing new features.

September 2019 - August 20202

Pneutec BV, Hoofddorp – *Internship Mechanical Engineer*

Designed different tools to improve and accelerate the processes at Pneutec within a cleanroom where they assembled hose bundles for ASML.

2010 - 2022

Intratuin, Beemster – *Side job: Garden center employee*

Helping with my father's company by fulfilling diverse responsibilities, including providing customer service, handling deliveries, conducting training sessions and supervising new (young) team members.

Education

September 2021 - Present

Technical University of Delft, Delft – *Master Robotics*

September 2020 - May 2021

Technical University of Delft, Delft – *Pre–Master Robotics*

September 2015 - May 2019

Hogeschool van Amsterdam (HvA) , Amsterdam – *Mechanical Engineering (ED&I)*

September 2010 - May 2015

Jan van Egmond, Purmerend – *HAVO (Senior general secondary education)*

Relevant courses

- Machine learning
- Dynamics and Control
- Robot Software Practicals
- Machine perception
- Planning & Decision Making
- Deep-Learning
- Full-stack Deep Learning
- Computer vision by Deep learning
- Human & Robot Interaction
- Control in Human & Robot Interaction
- Safety sciences
- Object Oriented Scientific Programming with C++

Relevant certificates

Machine Learning Engineering for Production (MLOps) Specialization
By DeepLearning.AI

- Design an ML production system end-to-end: project scoping, data needs, modeling strategies, and deployment requirements.
- Establish a model baseline, address concept drift, and prototype how to develop, deploy, and continuously improve a productionized ML application.
- Build data pipelines by gathering, cleaning, and validating datasets. Establish data lifecycle by using data lineage and provenance metadata tools.

- Apply best practices and progressive delivery techniques to maintain and monitor a continuously operating production system.
- Certificate of Completion: Verify Certificate

TensorFlow Developer Professional

By DeepLearning.AI

- Best practices for TensorFlow, a popular open-source machine learning framework to train a neural network for computer vision applications.
- Handle real-world image data and explore strategies to prevent overfitting, including augmentation and dropout.
- Build natural language processing systems using TensorFlow.
- Apply RNNs, GRUs, and LSTMs as you train them using text repositories.
- Certificate of Completion: Verify Certificate

Relevant skills

- **Languages:** Dutch (native), English (fluently)
- **Programming languages**: Python, C++ , Excel
- **Data Science:** MLOps, Docker, Streamlit, PyTorch, Git, Github, TensorFlow, Computer vision (Classification, Object detection), Natural Language Processing (NLP), Forecasting, Pandas, Linux, OpenCV, PowerBI
- **CAD:** CREO, Solidworks, Finite element methods (FEM)
- **Robotics**: Robot Operating System (ROS), Gazebo
- **Proptotyping:** CNC Machining, Milling, Lathe, 3D printing, VOL-VCA