YOHAN LE GARS

Looking for an internship in Robotics and/or Computer vision

Profile

French student with an international mindset who is strongly motivated in becoming a competent engineer in computer vision & AI.

Skills

- Python (PyTorch, Tensorflow, NumPy)
- Deep Learning and Machine Learning
- Computer Vision
- ROS
- Motion Planning
- Simultaneous Localization and Mapping
- C++
- Matlab
- Linux
- French, English

Contact

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Yohan Le Gars
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Experience

Aug 2020 - Nov 2020 — **Forvia/Faurecia**
PLC Programmer, Gorzów Wielkopolski (PL)
LAD programming (TIA Portal) + HMI with Siemens and Universal robots for a manufacturing station inside the plant.

Education

2021 - Present — **MSc Robotics**
TU Delft, Delft (NL)
The MSc Robotics is situated at the intersection of mechanical engineering and artificial intelligence.
Minor : Computer Vision & Deep Learning

2016 - 2021 — **BSc Advanced Technology**
University of Twente , Enschede (NL)
General Engineering
Mechanics, Thermodynamics, Fluid Mechanics, Dynamics, Electronics, Fields & Waves, Control theory.
For each discipline a challenging project work is required.

2014 - 2016 — **High school - French Baccalauréat**
Lycée Français Victor Hugo, Frankfurt (DE)

Additional activities

- **Sport & Fitness enthusiast**
- **DIY embedded systems projects**

Projects

2022 **A MONITORING MOBILE MANIPULATOR**

TU Delft

- Developped a software solution on ROS to achieve autonomous monitoring using a mobile manipulator
- Developped a state machine that is linked to all ROS nodes
- Developped a GUI with Qt5 to allow the operator to give new 2D locations for the mobile robot to reach and 3D points that the camera (hold by the manipulator) must record
- Human detections using Lidar and camera sensors.
- Motion planning and motion control for the manipulator using MoveIt package

2022 **HAND SIGNS DETECTION WITH LOTTERY TICKET HYPOTHESIS**

TU Delft

- Annotation of hand sign pictures using Roboflow
- Train the YOLOv5 model on google cloud platform
- Apply quantization and weights pruning to reduce model size and increase running speed
- Deploy the light weight model on a 2Gb RAM raspberry pi controlled mobile robot

2022 **3D HEAD RECONSTRUCTION**

TU Delft

- Reproducibility project from scratch of a deep learning paper: H3D-Net: Few-Shot High-Fidelity 3D Head Reconstruction.

2022 **PEDESTRIAN RECOGNITION & LOCALIZATION**

TU Delft

- Developed a machine learning algorithm to detect and localize pedestrians in 3D using monocular camera sensor and ground plane assumptions.
- Improved the algorithm using LiDAR point clouds, clustered using DBSCAN, for regions proposals.

2022 **PATH PLANNING & TRAJECTORY SMOOTHING**

TU Delft

- Developed Informed RRT and RRT* from scratch for a mobile robot.
- Applied cubic spline interpolation to obtain a smooth trajectory between the waypoints

2021 **OBSTACLE AVOIDANCE & PEDESTRIAN DETECTION FOR A SELF-DRIVING CAR**

TU Delft

- Developed a collection of ROS nodes, each tackling a different task, to achieve autonomous driving in a simulated test track.
- Designed two nodes to detect obstacles and pedestrians from the camera images and lidar point clouds using OpenCV and PCL.
- Developed a node that used these detections to generate control instructions.

2021 **ARTIFICIAL NEURAL NETWORK FOR A RACING GAME**

TU Delft

- Developped and trained a Neural Network for multi-class classification that used the top-view of a 2D racing game as input and outputted the control action (accelerate, steer, left/right, brake)

2021 **BACHELOR THESIS: INFLUENCE OF BOVINE SPERMATOZOA BUNDLING ON FLAGELLAR WAVE PROPAGATION**

Surgical Robotics Laboratory, Twente

- Mathematical analysis of flagellar wave propagation of bovine sperm cells from two videoscopies for soft robotics application.

2021 **CONTROL SEGWAY**

University of Twente

- Modelled the dynamics of a segway as an inverted pendulum using 20-sim and bond graphs theories.
- Developed a LQR state feedback controller.

2020 **ANTENNA AND FM TRANSMITTER**

University of Twente

- Developed a FM transmitter Colpritts harmonic oscillator circuit.
- Developed a helical antenna with 43 MHz resonant frequency. In the initial stages, an analytical and numerical description is performed using COMSOL.

2019 **A ROBOTIC ARM THAT CUTS CAKES**

University of Twente

- Developed a robotic arm powered by 2 DC motors. EMG signals from the upper limb's muscles are used as the control interface between the user and the robot. The robot is designed for people suffering from Duchenne muscular dystrophy