

David Matos

Curriculum Vitae

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David Matos
Personal Website

PERSONALIA

NAME, INITIALS	Matos Rodriguez, D.E.
FIRST NAME	David
STREET, HOUSE NUMBER	De Lampendriessen 31
ZIPCODE, CITY	5612 AH, Eindhoven
COUNTRY	the Netherlands
DATE OF BIRTH	06/12/1993
PLACE OF BIRTH	Panama, Panama
NATIONALITY	Panamanian
GENDER	Male

EXPERIENCE

12/2019 - 09/2020 (PT)
Master Graduation Thesis, Netherlands
Analysis of multiple modality object detectors and 3D multiple-object tracking
Python, PyTorch, ROS, Git, Docker
Benchmarked different object detectors based on camera, LiDAR sensors and implemented multiple affinity measures for data association, and Kalman Filter for state estimation in a 3D object tracking algorithm for autonomous driving. The final algorithm was implemented in the TU/e autonomous vehicle and tested with a sample real driving scenario.

09/2019 - 12/2019 (FT)
ViNotion, Netherlands
Deep Learning Intern
PyTorch, Python
Implemented FasterRCNN and SSD object detector networks with PyTorch to analyze the effects of obfuscating license plates at different levels. Additionally, different datasets were used for training purposes and determine the robustness of using a particular object detector, which could also be implemented on the perception module of an autonomous vehicle

09/2018 - 09/2019 (PT)
University Racing Eindhoven, Netherlands
Accumulator Engineer
Siemens NX10
TU Eindhoven's Formula Student team, the perfect environment to apply theoretical knowledge, where I designed some of the accumulator internals such as brackets, mounts or any other support for PCBs, which were then 3D printed. Additionally, performed Finite Element Analysis on components to make them up to spec. Furthermore, I had the final responsibility of the Engineering Design Judging team, which defends all technical design choices made at the competition.

07/2016 - 07/2017 (FT)
Fiat Chrysler Automobiles, United States
Catalyst Development Engineer
Responsible for resolving build issues related to powertrain to maintain build timing. Also responsible for reviewing with other powertrain engineers part requirements for each mule/proto build, to develop and publish Bill of Materials in database.

05/2015 - 09/2016 (PT)
Florida Institute of Technology Formula Team, United States
Suspension Team Lead
Matlab, Simulink, SolidWorks, ANSYS
Led a subteam of 5 people making sure deadlines, and all design requirements were met for the competition. Performed an finite element analysis of the suspension uprights using ANSYS workbench, along with its design in Solidworks. Contributed to development of the vehicle dynamics model using MATLAB and Simulink.

EDUCATION

09/2018 - 10/2020
M.Sc. Automotive Technology
Eindhoven University of Technology, Netherlands
Department of electrical engineering, signal processing systems group.
Thesis title: "Analysis of multiple modality object detectors and 3D multiple object tracking"

09/2012 - 09/2016
B.Sc. Mechanical Engineering
MAGNA CUM LAUDE
Florida Institute of Technology, United States
Senior Design Project: Design of a Formula Student car for FSAE Michigan Competition.

PROJECTS

02/2021 - PRESENT
PyTorch - Flask X-Ray Disease detection
PyTorch, Python, JavaScript, Flask, Git
Trained EfficientDet network on the Chest-anomaly kaggle dataset. Evaluation was performed using COCO evaluation. Deployed as a web app using Flask to show predictions. Personal [github project](#)

12/2020 - 01/2021
Plant Instance Segmentation
PyTorch, Python, Git
Implemented instance segmentation network Mask-RCNN to count and segment plants on a private dataset. Evaluated model qualitatively and quantitatively using COCO metrics. Training was performed on Google Cloud Console.

02/2020 - 10/2020
Pointtrcnn detections with ROS
PyTorch, Python, ROS, Git
Implemented SoA object detector in KITTI with ROS. Detections are visualized in LiDAR and camera space using RVIZ. Personal [github project](#)

Kitti data to Bag tool

C++, ROS, Git

A tool to convert raw data from the automotive KITTI dataset to a ROS bag, using the ROS PointCloud Library to convert the point clouds. Personal [github project](#)

01/2021 - 03/2021

Robust Semantic Segmentation

TensorFlow, Python

Implemented network on which different data augmentation techniques were used to determine its effect on a network performance. Google Cloud was used for training given its vast resources. Results were tested on synthetic Synthia Dataset. Team of 2 people

04/2019 - 07/2019

Kaggle Speech Recognition

TensorFlow, Python

Implemented network which consists of correctly predicting 10 different words from an audio file, which is converted to an spectrogram for input to CNN for training. Competition hosted by Kaggle. Team of 5 people

04/2019 - 07/2019

CityScapes Semantic Segmentation

TensorFlow, Python

Implemented network on which different experiments were done such as changing the optimizer, adding regularization and using full input size images to determine effect on the network with training on Google Cloud Console.

01/2019 - 04/2019

COMPUTER SKILLS

PROFICIENT WITH Python, PyTorch, TensorFlow, ROS, Matlab, Git, OpenCV

FAMILIAR WITH Docker, C++, Flask

LANGUAGES

ENGLISH Advanced

DUTCH Intermediate

SPANISH Native

REFERENCES

Available upon request.