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Reference

Mr. Stefan-Daniel Vilceanu, born on 16th February 2000 in Timisoara, Romania, worked as a research assistant with bachelor degree in the Research Area Vehicle Intelligence & Automated Driving at the Institute for Automotive Engineering (ika) from 15th April 2024 to 31st October 2024.

The Institute for Automotive Engineering, as part of the RWTH Aachen University, researches the vehicle including its systems and their interdependencies. From the idea of innovative concepts of components and systems to the realisation of vehicle prototypes, the employees actively develop the vehicle of the future and solve current significant issues in cooperation with automotive manufacturers and suppliers.

Within the scope of his activities, Mr. Vilceanu supported staff of the institute in research and industrial projects carried out with partners of the automotive industry.

The following tasks are particularly noteworthy:

- ROS 2 Node Implementation: Developed ROS 2 nodes in Python to integrate YOLOv2-based lane segmentation and drivable area detection for ADAS
- Bird's Eye View Transformation: Applied Inverse Perspective Mapping (IPM) to transform the camera feed into a top-down (BEV) perspective for more reliable lane analysis
- Lane Detection Algorithm: Designed a robust algorithm to determine lane position by identifying lanes from the image's midpoint in the BEV perspective
- Bayesian Filtering: Implemented Bayesian filtering to smooth lane position estimates, reducing noise and improving localization accuracy and overall stability

Mr. Vilceanu always showed a high degree of initiative whereas he convinced with his great commitment. He was capable of correctly grasping even difficult tasks as well as processing suitable solutions accordingly. He was fully capable of coping even with high amounts of workload at any given time. He always completed his tasks independently, goal-oriented and with great possible care and high accurateness. The results of his deliverables, both, in qualitative and quantitative respect, were always excellent. The delegated tasks were always carried out to our fullest satisfaction and his conduct towards his superiors and colleagues was always impeccable. Mr. Vilceanu was an excellent team player.

Mr. Vilceanu is leaving our institute as of 31st October 2024. We would like to thank Mr. Vilceanu for his excellent work at all times and wish him for his professional and private future great continued success and all the best.



Dipl.-Ing. Micha Lesemann
Managing Chief Engineer



Till Beemelmans M.Sc.
Research Area Vehicle Intelligence & Automated Driving