

Resume



Arnd Gazecki

Master of Science

Software Engineer | L2+ Automated Driving | Vehicle Buildup

arnd@codefanatic.de

About

I am an engineer with deep passion for urban automated driving systems. This technology fascinates me as much as I want to contribute to the development of self-driving cars. Making vehicle automation on public roads a safe reality is what motivates me in my current job at NVIDIA.

I am part of the vehicle buildup team, and responsible for the NVIDIA DRIVE AV software deployment. My main task is to make sure that the functional software stack consisting of perception, mapping and planning modules work as intended for vehicle automation. For this, I collaborate closely with other engineering teams.

I hold a Master's degree in Mechatronics, and have 5+ years of hands-on experience in perception and fusion based sensor systems. My hobby is software development on Linux, so I have picked up proficient programming skills in C++, Python and Go over the decades. I continually strive to improve my skills as I have educated myself to build deep neural networks with PyTorch and mobile apps with Flutter.

Languages

English | German

Industry Knowledge

Automated Driving | Sensor Perception | Computer Vision | Deep Learning
Systems Engineering | Software Engineering | Object-oriented Programming | Agile Methodologies

Tools and Technologies

Linux | macOS | QNX | Docker | C++ | Python | Go | Dart
PyTorch | AWS | Unreal 4 | Unity3D | CARLA | SVL Simulator | OpenCV
Qt | Bootstrap | jQuery | Flutter | CMake | Git | Jenkins | AFL | GoogleTest
ROS | AUTOSAR | CAN | Ethernet | Nvidia Drive AGX Pegasus

References

<https://github.com/cfanatic> | <https://codefanatic.de> | <https://cfanatic.medium.com>

Social Media

<https://linkedin.com/in/agzk>

Experience

since 07/22

NVIDIA, GERMANY

Deploying the NVIDIA DRIVE AV software stack on L2+ / L3 automated driving vehicles.

Functional area: System Software Engineering.

09/19 – 06/22

ROBERT BOSCH, GERMANY

Worked on a project for the development of a L4+ automated driving system for urban taxis.

Functional area: System Software Engineering.

- Defined the first release of the security test concept based on the complete L4+ system and software architecture with focus on risk mitigation against vehicle attacks
- Analyzed threats against sensors and AV stack components, and developed test plans
- Implemented security tests (e.g. QNX hardening), software test methods (e.g. AFL fuzzing), test automation on target hardware in CI fashion (e.g. Jenkins pipelines)
- Performed vehicle tests in the context of sensor security for radar and camera perception, as well as localization, and analyzed functional performance issues during attacks
- Researched adversarial sensor attack potentials on deep learning models, and validated the system robustness during attacks in simulations and test track measurements
- Developed a sensor security simulation environment based on the Unreal Engine with the Bosch Perception stack in open-loop to identify system vulnerabilities early on
- Supervised a student who performed a robustness evaluation of the traffic light detection module by implementing black-box optimized adversarial patch attacks

09/17 – 08/19

BOSCH ENGINEERING, GERMANY

Worked on projects for ACC / AEB driver assistance systems with radar and camera fusion.

Functional area: Software Engineering.

- Integrated and tested radar perception software related to raw point cloud processing, object tracking and classification, camera fusion and situational analysis in C/C++
- Performed NCAP-based object classification tests in vehicle measurements as the test driver and analyzed the impact of radar mounting positions outside of the nominal range
- Analyzed vehicle measurements with focus on identification of target object loss reasons and provided proposals to increase system performance in corner cases
- Supervised a student who developed an automatic target object loss analysis tool in Matlab

10/16 – 08/17

VALEO, GERMANY

Worked on a project for the development of automotive lidar perception.

Functional area: Software Engineering.

- Researched and implemented feature extraction algorithms based on point cloud input for road lane detection in C++
- Implemented a test environment to analyze the detection and feature extraction performance

09/14 – 09/16

ROBERT BOSCH, GERMANY

Worked on a project for the development of a 48V electrical boost recuperation machine.

Functional area: Software Engineering.

- Implemented software requirements for sensors and actuators in Matlab/Simulink according to the V-model lifecycle and ISO-26262 compliance
- Performed tests on the target hardware by analyzing controls and runtime in HiL simulations

04/12 – 10/12

ROBERT BOSCH, UNITED STATES

Internship for a business case study in the field of rapid prototyping for flexible engine control.

Functional area: Software Engineering.

Education

05/11 – 05/14

UNIVERSITY OF ERLANGEN-NUREMBERG, GERMANY

Degree: Master of Science. Course of study: Mechatronics. Final grade: 1.6 DE / 3.6 GPA.

03/21 – 05/21

UDACITY

Graduated from the Deep Learning Nanodegree course. Developed neural networks in PyTorch.

<https://graduation.udacity.com/confirm/YVGG6KEX>