

Oleksandr Kutovyi

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PROFESSIONAL SUMMARY

Mission-driven Software Developer with a Master's in Automation Engineering and 3+ years of experience building high-reliability simulations and control systems for autonomous heavy machinery and robotics. Expert in Python and C-based languages, with a deep focus on real-time perception and physically accurate digital twins. Committed to developing ethical, robust AI-based capabilities for semi-autonomous platforms in high-risk environments.

SKILLS

Core Languages: Python, C++ (Learning: Rust), C#, CODESYS 3.5

Autonomous Systems: ROS/ROS2, SLAM, Perception (Nvidia TAO, Isaac Sim), Digital Twins, Nvidia Isaac Sim & Replicator, Nvidia TAO, Nvidia Jetson

Simulation & Physics: IPG CarMaker, MATLAB/Simulink, Gazebo, BeamNG.tech.

Infrastructure & Tools: Git, CMake, Jenkins (CI/CD), Docker, AWS.

Soft Skills: Collaborative Problem Solving, Technical Documentation, Ethical Engineering.

WORK EXPERIENCE

Software Developer

June. 2024 – current

Liebherr Electronics and Drives GmbH.

Biberach, Germany

- Engineered high-reliability propulsion and communication software for autonomous mining trucks using C++ and CODESYS, ensuring 24/7 operational uptime in high-stress, mission-critical environments.
- Developed internal CI/CD infrastructure.
- **Technologies:** IPG CarMaker, CODESYS 3.5, C++/C#, MATLAB/Simulink, Jenkins.

Software Developer, working student

Oct. 2022 – Jun. 2024

Bosch Engineering GmbH.

Holzkirchen/ Abstatt, Germany

- Optimized radar and camera perception simulations using C++ and Python, implementing automated CI/CD pipelines that reduced testing friction and increased vECU simulation accuracy.
- Contributed to a group working for simulation physics engine involving MATLAB/Simulink and BeamNG.tech.
- **Technologies:** IPG CarMaker, Python, C++, CMake, Gtest, BeamNG.tech, MATLAB/Simulink, Jenkins, Git.

Research Assistant, working student

Apr. 2021 – Nov. 2022

IGMR of the RWTH Aachen

Aachen, Germany

- Developed a semi-autonomous navigation and vision framework in ROS2, leveraging synthetic data pipelines with Nvidia Isaac Sim to improve object pose estimation accuracy for real-world robotic applications.
- **Technologies:** Python, C++, CMake, ROS/ROS2, Nvidia Isaac sim & Replicator, Nvidia TAO, Tensorflow, Blender, Git, UML.

EDUCATION

Master of Science | *Automation Engineering*

Apr. 2021 – Apr. 2024

RWTH Aachen University

Aachen, Germany

Bachelor of Science | *Mechanical Engineering. Major: Hydraulics and Mechatronics*

Sept. 2017 – Aug. 2020

Kyiv Polytechnic Institute Ihor Sikorskyi

Kyiv, Ukraine

PROJECTS AND CERTIFICATES

European Robotics Forum (ERF) 2022 Hackathon <i>Python, ROS2</i> Rotterdam, Netherlands	June 2022
<ul style="list-style-type: none">• Implemented SLAM algorithms for a 250 kg diff-drive robot.• Together with 8 students secured 2nd place amongst 5 teams.	
Object segmentation using synthetic data generation <i>Nvidia Isaac, AWS, Nvidia Jetson</i> Aachen, Germany	Summer 2022
<ul style="list-style-type: none">• Implemented visual object segmentation pipeline running on AWS instance and Nvidia Jetson Nano.	
Modern Robotics: Mechanics, Planning, and Control <i>Python, CoppeliaSim</i> Northwestern University - Evanston, IL, USA	Certificate
Reinforcement Learning <i>Python, Tensorflow</i> University of Alberta - Edmonton, Alberta, Canada	Certificate
Machine Learning <i>MATLAB</i> Stanford - Stanford, CA, USA	Certificate
Design Patterns in Modern C++ <i>C++, System Design</i> Udemy	Certificate

HONORS AND AWARDS

Deutschlandstipendium Awarded twice due to achieving high performance at studies and work.	2022 and 2023
Dean's list Awarded due to great performance during my Bachelor's degree.	2018 and 2019