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Software Engineer
Simulation & Automated Systems

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Experience

Working Student Software Engineer **Aug 2024 — Present**
Siemens AG – Cybersecurity & Trust *Munich, Germany*

- Prototyping cybersecurity tools and solutions focusing on data integrity and automated vulnerability detection.
- Collaborating with research engineers to integrate and validate security concepts in prototype systems.
- Working in an agile team using CI/CD pipelines, Git workflows, LLM-assisted development, and regular sprint cycles to deliver modular, testable code.

Software Engineer **Dec 2022 — Aug 2024**
ATS Europe Srl *Verona, Italy*

- Designed and developed a web-based platform from scratch to support automation and staff operations, integrating CRM functionality, workflow management, document handling and customer-facing access.
- Refactored and migrated legacy code into the new platform, improving performance, data security and the efficiency of data retrieval and visualization processes.
- Collaborated with internal staff and external customers to gather requirements, deliver new features and deploy customized solutions.

Research Internship **Apr 2022 — Oct 2022**
University of Verona *Verona, Italy*

- Contributed to research on real-time object detection and multi-object tracking algorithms for surveillance and robotics applications.
- Benchmarked CNN-based detection models on datasets, analyzing trade-offs between accuracy, robustness and inference speed.

Education

MSc in Informatics, *Technische Universität München (TUM)* – Focus: Robotics, Automated Driving and Simulation Dec 2025
BSc in Computer Science, *University of Verona* Oct 2022

Latest Projects

Master's Thesis – Assessment of Static Environment Fidelity on Automated Driving
Technische Universität München (TUM) *2025*

- Investigated how different levels of static environment fidelity in simulation (object density, textures, lighting, weather) affect the behavior of automated software stack, to determine how much realism is actually needed.
- Developed multiple variants of a simulated environment in CARLA with systematically varied static fidelity.
- Designed and ran scenarios with an automated driving system, combining objective metrics (lane-keeping, collision avoidance, comfort).
- Analyzed results to quantify when increased environment fidelity meaningfully impacts safety, comfort, and (simulated) driver workload, and when it does not, avoiding unnecessary over-engineering of the simulation environment.

Semester Project – Static Scenario Generation for Automated Driving
Technische Universität München (TUM) *2024*

- Developed a pipeline to generate realistic static driving scenarios in CARLA using multimodal sensor data collected from real-world driving (camera, LiDAR, GNSS and odometry).
- Created concatenated LiDAR point clouds (GLIM), removed ground planes and applied clustering to extract building edges and roadside objects.
- Used photogrammetry techniques (Agisoft Metashape) to reconstruct 3D buildings and maps from camera data and integrated them into CARLA via the Python API.
- Applied YOLO-based object detection and clustering to label roadside assets, fused 2D camera detections with 3D clusters and supported user-assisted labeling for unknown objects. Imported the resulting objects into the simulation environment.

Skills

Languages	Python, C++, SQL, JavaScript, HTML, CSS
Frameworks & Libraries	PyTorch, OpenCV, Pandas, NumPy, Scikit-learn, Django, Vue.js
DevOps & Tools	Git, Docker, Kubernetes, Rancher, Argo CD, Linux, VS Code
Simulation & Robotics	CARLA Simulator, Unreal Engine, ROS2, Autoware, ScenarioRunner
3D Data & Photogrammetry	Blender, Agisoft Metashape, OpenDRIVE, QGIS
Communication	English (C1), German (B1, actively improving), Italian (Native)