

Philipp Ahrendt

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EDUCATION

KTH Royal Institute of Technology/ Polytech Nice Sophia

Stockholm, Sweden/ Nice, France

MSc: Intelligent Autonomous Systems (Double degree)

2022 - 2024

- Grade: A, Thesis: Investigating Altitude-Adaptive Methods for Enhancing Small Object Detection on UAVs

Karlsruhe Institute Of Technology

Karlsruhe, Germany

BSc: Electrical Engineering and Computer Science

2016 - 2021

- Thesis: Detection and Classification of Higher Cognitive Functions using an EEG-based Brain-Computer Interface

PROFESSIONAL EXPERIENCE

Flox Robotics

Stockholm, Sweden

Research Engineer Intern

01/2024 – 10/2024

- Investigated how altitude information of a UAV can be incorporated into an **object detection** model
- Improved average precision of small object detection by **2%** while reducing number of parameters by **75%**

SoundHound

Berlin, Germany

Software Engineer

04/2022 – 08/2022

- Extended voice assistance API to support a new German-language domain, enhancing natural language understanding and generation capabilities
- Increased testing efficiency by enhancing a **Python**-based tool using pair-programming

Ayrendoo

Berlin, Germany

Cofounder and Lead Developer

02/2020 – 10/2021

- Created a social meetup app in **Swift** with a location based map feature, group chat capability, scalable user and event database with Firebase and more
- Managed the team by introducing new work ethics such as daily stand-ups, sprints and flexible or fixed working times to increase productivity and help with consistent work output
- Led feature integration for the MVP, ensuring a cohesive and functional beta launch

ETAS K.K. - Subsidiary of Robert Bosch GmbH

Yokohama, Japan

Cybersecurity Engineer Intern

08/2019 – 01/2020

- Developed a **Python**-based interface enabling proprietary C-based hardware (CAN-bus) to integrate seamlessly with the open-source python-can tool
- Created a testing suite to streamline the evolution of a penetration-testing tool, ensuring functionality after each code modification

Artiminds Robotics GmbH

Karlsruhe, Germany

Junior Software Engineer

07/2017 – 05/2019

- Developed **C++** features for company software, including an export function that generated a template graph of robot instructions in a customer-ready Word document
- Enhanced interface functionality and user-friendliness by refining existing features and implementing effective workarounds for critical legacy code
- Integrated a camera sensor for real-time image feed from a KUKA robot into company software using KUKA robot language without any prior experience

PROJECTS

AI-based Speaker Recognition System

<https://github.com/phiahr/OpenSesame>

- Developed "OpenSesame" a secure speaker recognition system, integrating real-time audio processing and **machine learning** models for access control based on speaker identification and keyword recognition
- Implemented a dual-model architecture with a feed-forward NN and SVM for enhanced verification accuracy, achieving a 94% validation accuracy on recordings

NXP Autonomous Car

- Build a small-scale autonomous car using a line camera, electrical motors, ESP32 and a NXP **Microcontroller**
- Designed a system to integrate the different components in an **RTOS** using Zephyr OS and then Mbed OS
- Implemented logic for the line camera and a speed and steering controller based on the output of the camera

SKILLS & INTERESTS

- **Skills:** C++, Python, Git, Machine Learning, ROS, Computer Vision, Linux, PyTorch, TensorFlow, Control
- **Languages:** Fluent in German, English, French
- **Interests:** Intersection of Robotics and AI, Tennis, Effective Altruism, Learning new skills