

## AI & Robotics Start-UP and DFKI Spin-Off from Osnabrück

Job ad.: **Robot Software Engineer** (m/w/d)



### Full-time Robot Software Engineer position at Nature Robots GmbH

Nature Robots is a young robotics and AI startup with the goal of supporting regenerative and sustainable agriculture and build a full farming system. Challenges such as global climate change, globally increasing populations, lack of labor, and increasing local trade for organic food require resilient and local bio-intensive farming systems.

In short term perspective, Nature Robots is developing new technological solutions for humans and nature in agriculture, such as long-term autonomous agricultural robots that use outdoor navigation to navigate uneven and semi-structured terrain while recording high temporal and spatial resolution 3D maps of plants to provide recommended actions for the gardener and farmers.

Your task is the development of a navigation system for an autonomous agricultural robot or machine: Within the scope of a cooperation, a 2D navigation system for an existing autonomous robot is to be further developed. Nature Robots has co-developed the ROS navigation framework Move Base Flex. This runs on dozens of robots in production in large warehouses and acts as a middle layer for navigation control. It controls low-level planners and controllers that move the robot from A to B in an environment with static and dynamic obstacles and objects to complete tasks. It also provides a standardized interface to high-level robot systems and planners that unify and control all the robot's subcomponents in a regulated manner. Building on Move Base Flex, the navigation strategies and navigation controllers need to be developed.

#### Your tasks:

- Further development integration of a robot navigation system to autonomous agricultural robots using ROS, Move Base Flex (MBF) and Behavior Trees (BTs).
- Further development of row following and head land controllers for various environments as MBF controllers and integration in the corresponding BT.
- Implementation, integration, testing and documentation of the developed strategies into the existing solutions.

#### Our requirements:

- Completed Master's degree in Robotics, Computer Science, Artificial Intelligence, Cognitive Science or a related field of study.
- Good language skills in English and German
- Excellent Knowledge in sensor data processing and mobile robotics.
- Excellent knowledge of Python, C++ and ROS

**Desirable:**

- Practical experience in robot navigation, move base, or Move Base Flex.
- Experience with ROS2 and gRPC, ProtoBuf, FlatBuffers, HDF5

**What you can expect:**

- The opportunity to work on interdisciplinary research projects at the intersection of AI and robotics.
- Excellent contacts with the scientific and business communities.
- An innovative, agile, and professional work environment in an AI and robotics startup.

The employer is the start-up Nature Robots GmbH and the work takes place at the locations Osnabrück (CIC) and Arenshorst, Bohmte (AI Market Garden), See impressions below:

People with disabilities and applicants of equal status will be given preferential consideration if they are equally qualified.

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## Coppenrath Innovation Center (CIC), Osnabrück – Offices



## Campus Gut Arenshorst, Bohmte – Robot Test Environment, Workshops, Offices

