



Partner:  
 Chair of Robotics,  
 Artificial Intelligence  
 and Embedded Systems

## Localization and Mapping of Unknown Terrain for an Autonomous Robot

IDP Informatics

Bachelor's Thesis

Master's Thesis

Angsa revolutionizes the removal of trash on grass and gravel: Individual objects are detected by an artificial intelligence and removed by the autonomous robot.

**The goal of this project** is to iteratively generate a map of the environment of the robot as it is deployed on a new outdoor terrain. This will enable the robot to avoid known obstacles and improve the tracability for the end user.



### Your Tasks

- Review the state-of-the-art for outdoor SLAM
- Implement promising approaches and integrate them in the robot system (ROS)
- Incorporate data from front camera segmentation and detected obstacles
- Evaluate the performance in real-world scenarios and in pilot projects



### Your Profile

- You like solving complex problems!
- Enthusiasm for mobile and intelligent robots
- Experience with SLAM or background in related machine learning models
- Good Python or C++ skills
- Team spirit and good communication skills



### What We Offer

- **Startup culture:** Team events, flat hierarchies, agile methods and flexible working hours
- **Real-world impact:** Your modules are used with pilot customers in Munich, Berlin and Hamburg.
- **Responsibility and leadership:** Good work and ownership are rewarded at Angsa: You can play a decisive role in shaping your role in the team.
- **Workplace & Equipment:** A workplace with desk for you in our office and workshop in the TUM Incubator, access to the Makerspace, free coffee & snacks.

### Sounds Interesting?

Send us an e-mail with a short description of your skills and motivation. If you have questions about the job or about us, just call us or come by our office in Garching.

Not the right topic yet? Have a look at our other open projects:  
[angsa-robotics.com/students](http://angsa-robotics.com/students)

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