

# Software Engineer

## ARC Student Project - MARC Vision Pipeline - Volunteering Position

The Autonomous River Cleanup (ARC) is a student-led initiative supported by the Robotic Systems Lab with the goal of removing riverine waste. By joining the **MARC project**, you will contribute to ARC's current developments, where we aim to improve the software pipeline of our Mobile Autonomous Sorting Container (MARC). Your main task is implementing the YOLO model for object detection and tracking, instance segmentation, waste item classification, and pose estimation in the detection stage. During the detection, we determine the waste item's material type and position on the conveyor belt for autonomous robotic sorting.

### Your role:

During your time at ARC, you will do the following:

- Familiarizing yourself with the robotic sorting container and software pipeline
- Implementing the YOLO model to replace the current vision pipeline of the detection stage
- Testing the new vision pipeline on-site at the robotic sorting container

### Your skills and background:

Ideally, you already have the following skills or are eager to learn them:

- Familiarity with Python, ROS, and version control
- Basic understanding of machine learning and computer vision
- Experience in working with an existing code framework

You do not need to be an expert yet, but you are willing to become one!

### Expectations:

As a team member, we expect you to:

- Be proactive and take responsibility for your work
- Participate in team meetings and workshops
- Take ownership of your projects and tasks
- Collaborate closely with your team

### What do you receive?

By participating in this unique opportunity, you will:

- Expand your knowledge and gain hands-on experience on a project outside of the classroom
- Establish and grow your professional network and engage with people from academia
- Be part of a friendly community, grow as a unit, and build friendships
- Do something meaningful for our natural environment
- Receive support and guidance from current team members
- Kickstart your career!

**Project start:** Ideally July 2024

**Duration:** 1-2 semesters

**Working hours:** on average 8 hours/week

**Target group:** Bachelor's and master's students

**Location:** Zurich

Please be informed that your work, as part of a student project, will be entirely voluntary and does not offer any payment. However, you will be able to prove your practical experience in your CV and have access to a vast infrastructure to realize your ideas.

### Interested? Any questions? Get in touch!

We look forward to hearing from you! For the application, please specify why you are interested in the project and include your CV. Please reach us via our [arc@ethz.ch](mailto:arc@ethz.ch).