

Dear Candidate,

Thank you for your interest in the Robotics ML Engineer position. We are excited about your background and would like to move forward with a practical exercise to better understand your approach to solving real-world robotics challenges.

This role requires someone who can demonstrate the ability to train robots using machine learning and contribute effectively to our projects. To assess your skills, we have prepared an open-ended exercise that allows you to showcase your expertise in a meaningful way.

The Exercise

Your task is to design and implement a pipeline to train a robot to perform a perception, manipulation, or locomotion task of your choice (or **a project you have completed in the past** that fits this exercise). This can be done entirely in simulation using free tools, and we encourage creativity in defining the task.

Deliverables

1. Task Definition

- Briefly describe the task you've chosen (e.g., manipulation in a robotics application, grasping, locomotion, etc.) and explain its relevance to robotics.

2. Pipeline and Toolchain

- Outline the pipeline you would use to train the robot, including:
 - The ML algorithms or techniques (e.g., reinforcement learning, imitation learning, computer vision).
 - The tools and frameworks you plan to use (e.g., PyBullet, Gazebo, ROS, PyTorch, TensorFlow).
 - Any pre-processing, simulation setup, or post-processing steps involved.

3. Demonstration

- Train the robot in simulation and record a short video (up to 5 minutes) using Loom or a similar tool. The video should:
 - Walk us through your process, highlighting any challenges faced and how they were addressed.
 - Show the final result of the trained robot performing the task.

What Not to Do:

- **No presentations** – We're only interested in **code walkthroughs** and a **step-by-step breakdown** of your AI pipeline.
- **Do not exceed 5 minutes** – Think of this as a **modern cover letter**, a short introduction, not a deep dive

Guidelines

- **Timeframe:** Applications will be reviewed on a first-come, first-served basis.
- **Open-Ended:** The task and tools are up to you, but the focus should be on demonstrating your ability to train a specific aspect of robotics using ML.
- **Simulation Tools:** If you don't have access to physical hardware, free simulators like PyBullet, Gazebo, or MuJoCo can be used.
- **Submission:** Please share the following:
 - A link to your Loom video or similar demonstration.
 - A brief write-up of your pipeline.
 - Any relevant code or files via the preferred submission method (e.g., Google Drive link, email attachment, etc.).

Why We Require This Exercise

This task is designed to reflect the kind of work you'd be doing in this role. It allows us to assess your technical skills, problem-solving approach, and ability to communicate your work effectively.

If you have any questions or need clarification, feel free to reach out. We look forward to seeing what you create!

Best regards,

Lucky Robots