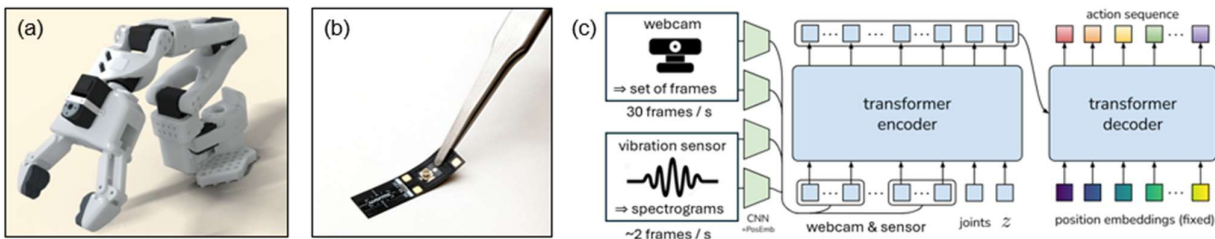


Job opportunity (ref. 0026)

Internship: Vibration sensing in robotics

Wormsensing is a deep-tech company based in Grenoble, founded in January 2020 as a spin-off of CEA LETI. We provide our clients (Industry, Energy, Aerospace, Transportation, Healthcare, Research) with cutting-edge piezo sensors that drastically reduce the cost of equipment diagnostics and monitoring. Beyond testing and measurement, our sensing technology pushes the boundaries of touch interface design and enables the recording and recognition of specific acoustic patterns even in noisy environments.

Among the many potential applications of Wormsensing's technology Dragonfly®, robotics stands out as a promising field where enhanced sensing can unlock new functionalities. A key point is to harness Dragonfly® large dynamic range (strains from mm/m down to nm/m) and its wide bandwidth (vibrations from 0.01 Hz to 100 kHz). This project aims to benchmark these capabilities.



Hardware overview. (a) The robotic arm SO-101 driven by HuggingFace/LeRobot library with the open-source gripper design PincOpen. (b) The piezo sensor Dragonfly®. (c) Architecture of Action Chunking with Transformers (ACT) with an addition of vibration sensor data. Photo credits: Pollen Robotics, Wormsensing and adapted from <https://arxiv.org/abs/2304.13705>.

Mission

Fine manipulation tasks remain extremely challenging for robots because they demand precise joint coordination, sensitive contact force control, and continuous visual feedback. Recent work has shown that such skills can be learned efficiently from demonstrations, even when only a small amount of demonstration data is available. The Action Chunking with Transformers (ACT) framework advances this idea by grouping sequences of actions into chunks and modeling them with a transformer-based generative model, which smooths trajectories, mitigates drift, and reduces error accumulation compared to standard imitation learning.

The goal of this internship is to benchmark several conventional vibration sensors within the ACT framework using standard manipulation tasks. We will leverage the open-source LeRobot library on the SO-101 robotic arm (equipped either with its standard gripper or the open-source PincOpen design) for the following tasks:

1. Insertion (e.g. wrench, USB, power plug, LEGO block) in a target: without and with vibration sensor.
2. Slippage detection: identifying when a gripped object begins to slip for a few sensor technologies.
3. (If time allows) Sustained contact and motion: e.g. wiping a whiteboard.
4. (If time allows) Surface characterization: recognizing material or texture types.

State-of-the-art sensors will be available for benchmarking (in addition to Dragonfly® piezo sensors by Wormsensing): contact microphones (PZT), metallic strain gauges, accelerometers, and force cells.

The main objective of the internship will be to integrate various types of sensors into the SO-101 robotic arm ecosystem (data collection, AI training and inference pipelines, visualization), and to benchmark the sensors' performance in robotic manipulation tasks (success rates).

The intern will have the possibility to contribute to LeRobot community by proposing vibration sensing features and enabling the training and inference of AI algorithms (e.g. Action Chunking Transformers) within the LeRobot pipeline. Moreover, results will be shared periodically with the LeRobot team, associated with the project.

References

- LeRobot Library: <https://github.com/huggingface/lerobot>
- Robotic arm SO-101: <https://huggingface.co/docs/lerobot/en/so101>
- Gripper PincOpen: <https://github.com/pollen-robotics/PincOpen>
- An example of ACT policy implementation: <https://www.youtube.com/watch?v=tkEMLOLEwo>
- ACT framework: <https://arxiv.org/abs/2304.13705>

You

- Final-year Master's or engineering student in Robotics, Computer Science, or Embedded AI.
- Familiar with Python and data pipelines for AI. Familiarity with LeRobot library is a plus.
- Interest in electronics, programming and hands-on experimental work.
- Strong team spirit and excellent communication skills.

Internship details

- Duration: flexible (6 months preferred)
- Location: Seyssinet-Pariset (Grenoble area), France
- Start: flexible (February, March, or April 2026 preferred)
- Deliverables: report, open-source contributions, demo video, and white paper
- Keywords: Robotics – AI – Open Source – Sensors – Vibration

At Wormsensing, our values form the foundation of who we are and what drives our success. They guide every action and decision, both within our team and in collaboration with our partners. They reflect our commitment to act with elegance, boldness, perseverance, joy, and kindness in everything we do.

Send your application (resume + cover letter) at hr@wormsensing.com