

Optical Pen Tracking for handwriting rehabilitation



Company: Retras (backed by INRIA Paris)

Location: Paris 12e, France

Duration: 5 months

About us

Retras offers a medical handwriting rehabilitation device to patients suffering from neuromotor disorders (stroke, Parkinson, etc.) based on artificial intelligence, which generates feedback to guide the correction of gesture and posture. We work both in English and in French.

Context of your work

To generate feedback and analyze the patient's movements, we need to precisely track the movements of the pen in space during the handwriting. We are interested in exploring Optical Tracking of a pen, as demonstrated [here](#) (or [here](#)).

Tasks

In this internship, you will:

1. Review the literature on pen tracking.
2. Play with existing methods, reimplement some methods if needed.
3. Test the robustness of the current methods to various perturbations (lighting conditions, angle, sensitivity to calibration, ...)
4. Adapt the sensor fusion system to the tablet and pen we use
5. If enough time, use an hardware device to collect movements and finger pressure metrics

What we provide you with

- Flexible guidance and support: depending on whether you prefer more autonomy or being more guided.
- On-site: our office is at INRIA Paris 12e
- Compensation : ~580 euros/month

The ideal profile for us

- Familiar with python and computer vision – you will pass some technical tests after the first interview
- Has already worked with devices like Arduino or Raspberry Pi
- Native or \geq B2 in English or French
- Autonomous

Contacts

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References

<https://github.com/Jcparkyn/dpoint>

<http://media.ee.ntu.edu.tw/research/DodecaPen/>