

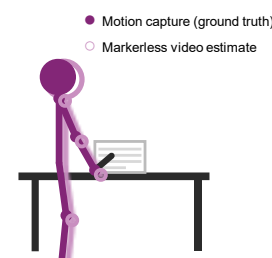
Ground-Truthing Posture: Validating Markerless Video for Handwriting Disorders

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1 INTRODUCTION – RESEARCH QUESTION

AVIAREPTE (Analyse Vidéo et Intelligence Artificielle pour le Repérage Précoce des Troubles de l'Écriture) is developing a low-cost, **camera-based system** to catch early signs of dysgraphia in children. **Posture** is a key clinical marker, but markerless video estimation (MediaPipe, OpenCV) has never been validated against a **motion-capture gold standard** for this task.

Can 3D motion capture provide the **ground-truth references** needed to validate markerless video posture estimation in **schools**?



2 AIMS OF THE INTERNSHIP

Validate markerless posture estimation against 3D motion capture.

1

Objective: Acquire synchronized motion-capture, multi-camera video, and connected-pen data on adult participants during handwriting.

Outcome: Quantify the accuracy of camera-based posture and hand-tracking pipelines against motion-capture ground truth.



2

Build an ergonomic posture-scoring method for handwriting.

Objective: Adapt REBA/RULA-inspired ergonomic scores to handwriting posture, and test whether video-based scores match motion-capture-based ones.

Outcome: A validated, camera-only posture-classification pipeline.

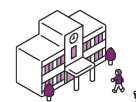


3

Test generalization to real, at-risk children.

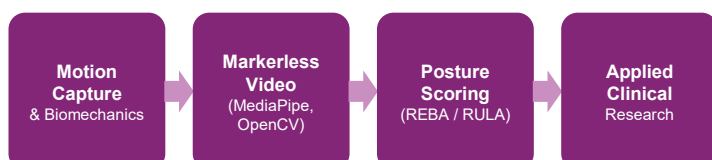
Objective: Apply the validated pipeline to an existing adult dataset, then to school-based acquisitions with children with and without potential dysgraphia.

Outcome: A non-invasive posture-screening tool ready for classroom use.



3 INTERNSHIP KEY POINTS

Combining motion capture, markerless video and ergonomic posture scoring bridges biomechanics and computer vision, turning a lab-validated method into a tool that could screen handwriting posture directly in the classroom.



4 ABOUT SUPERVISION



The internship will be supervised by a team from *EuroMov Digital Health in Motion* in Montpellier, specialists in artificial intelligence, human movement, and handwriting disorders.

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References

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