The digital world is offering an amazing range of possibilities for everyone, especially for people with disabilities. Come and join us as a **Master 2 intern** to leverage new technologies to offer life-changing solutions for people with visual impairment.

Development of an Android Application to Measure Reading Performance in both Clinical and Research Environments

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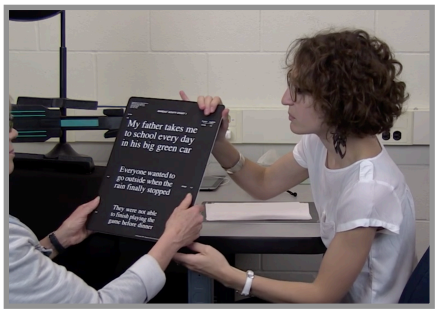
CONTEXT: The *MNREAD ACUITY CHART* is a standardized reading test has been designed to measure the reading performance of people with normal and low vision [1] (see also video [2]). Its prominent use worldwide in both clinical and research settings makes it a strong diagnostic tool for reading deficit. In brief, the MNREAD allows to measure how reading performance changes when print size decreases, by presenting a series of short sentences with decreasing size printed on cardboard.



PROBLEM: To respond to the rapid transition to digital reading in our culture, the time has come to adapt reading-acuity measures to evaluate legibility on digital displays. Therefore, the creators of the MNREAD have recently developed an electronic version of the MNREAD test, running on iOS: the MNREAD iPad App ©2017 [3,4]. This digital transition will help standardize reading assessment in several ways: (a) through unified testing and scoring methods that increase inter-tester reliability; (b) by promoting data sharing and portability. However, the MNREAD test is not yet available on Android, while many clinics use this platform for patient-care and data collection.

METHOD: Our main objective is to develop an Android application that will replicate the MNREAD iPad App, while bringing new features. Throughout the developing process, e-ink tablets will be used (e.g., BOOX 13.3”). Once development is completed, the same devices will be used for experimental validation through within-subject comparison.

PERSPECTIVE: In the short run, the MNREAD Android app will serve as a research tool, allowing for instance to generalize the principles of the test to evaluate the effects on reading of dependent variables other than print size e.g., evaluate the readability of a new typeface, letter spacing and line length. In the long run, the MNREAD Android app may be commercialized to serve as a valuable tool in clinical settings.

BIBLIOGRAPHY:

[1] Mansfield JS, Ahn SJ, Legge GE, Luebker A (1993) A new reading-acuity chart for normal and low vision. Ophthalmic and Visual Optics/Noninvasive Assessment of the Visual System Technical Digest, (Optical Society of America, Washington, DC., 1993.) 3: 232--235.
[2] VIDEO of the classical MNREAD test: https://www.precision-vision.com/mn-read-testing-demonstration/

[3] Calabrèse, A., To, L., He, Y., Berkholtz, E., Rafian, P., & Legge, G. E. (2018a). Comparing Performance on the MNREAD iPad Application with the MNREAD Acuity Chart. Journal of Vision, 18(1), 8. http://doi.org/10.1167/18.1.8
[4] MNREAD iPad App ©2017 – Version 1.5
Legge G.E., Calabrèse A., To L., Mansfield J.S., Bigelow C.
Apple App Store - https://itunes.apple.com/us/app/mnread/id1196638274?ls=1&mt=8

SUPERVISORS: The candidate will be co-supervised by A. Calabrèse, a psychophysicist specialized in visual neuroscience with a strong clinical expertise, and P. Kornprobst, a mathematician with strong expertise in computer vision and human vision understanding.

CONDITIONS:

- Duration: 6 months
- Starting date: February/March 2020
- Where: Inria Sophia Antipolis - Méditerranée, France (https://www.inria.fr/en/centre/sophia).
- Salary: ≈ 550 euros per month.

CURRICULUM OF THE CANDIDATE: Applicants should have experience in developing Android applications, a keen interest in user experience, low vision or both, and a relevant Master, for example in computer science, linguistics, digital humanities or natural language processing.

FOLLOW-UP: Funding opportunities to continue for a Ph.D.

TO APPLY: Please visit https://team.inria.fr/biovision/job-offers.