FollowMe: AI To Revolutionize Cortical Visual Impairment

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The most prevalent vision impairment in young children worldwide, cortical visual impairment (CVI) is caused by damage to the visual cortex or optic nerve. State-of-the-art therapy techniques involve training vision by tracking slow-moving, brightly-colored objects, but are qualitative, subjective, and a huge caretaker responsibility. To help, I built FollowMe, a novel AI-powered web application providing free, at-home, individualized therapy and automated results tracking. Capitalizing on peak neuroplasticity, it utilizes a continuously self-calibrating gaze-tracking model via a laptop webcam, estimating error between patients' scanpaths and true paths of objects being followed on a screen. An improved model from last year includes pop-up notifications to inform guardians of out-of-frame positioning, logging when children best focus their gaze, and exciting human experimental results on FollowMe's gaze-tracking accuracy across a wide depth range and the transferability of its calibration model. Exercises with object color, size, speed, and shape personalizations are provided through a recommender model. A more encompassing patient dashboard, enabling doctors to embed customizable exercises at specific points within therapy plans, has come to life. My finding that pre-target fixation durations decrease as gaze nears a target actualized an additional vision progress metric across CVI phases. Moreover, a Bluetooth-enabled hardware companion records and analyzes biometrics for anxiety anomaly detection, optimizing exercise recommendations. As telemedicine becomes increasingly mainstream, FollowMe offers a powerful biotech solution to accelerate multi-year treatment timelines.

Awards Won:

First Award of $5,000

Dudley R. Herschbach SIYSS Award