than those obtained with standard ErrP protocols that only classify in the window of the event [1]. This decay is reasonable considering that classifying with a sliding window conveys a higher chance of detecting a false positive during non event intervals. Trajectories executed by the device according to their classification as false positives or false negatives are depicted in Figure 3. Furthermore, it can be seen that correct trials are mostly well detected independently of the direction and distance covered by the device, and only few of them are detected as erroneous. However, the number of erroneous trials not detected was higher, since it was preferable to miss the detection of an error than detect errors where was not intended. Also, notice that most of the true negatives ended up very close to the goal. Indeed, 40% of them ended less than 50 pixels from it, which lead us to think that the subjects may have not interpreted them as erroneous.

4 Conclusions and future work

This paper studies the on-line asynchronous detection of error potentials during continuous trajectories. The results obtained for the proposed experimental protocol show that the error potentials appear when the user monitors a continuous target reaching task and that they can be detected in single trial using a sliding window, obtaining results comparable to those achieved in discrete tasks. These promising results are a first step towards the use of this type of cognitive information to control or teach robotic devices in realistic and complex tasks. There exist several opportunities for future work. Currently, we are extending the study to more users and more types of trajectories containing errors. Also we are testing the usage of this kind of events on real devices obtaining promising results.

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