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“Towards Intoxication Detection via Non-invasive Natural Typing”

Cellphone use over the years has risen to near ubiquitous levels, and with it has risen the possibility of and interest in using phones as diagnostic devices. A person's typing can give insight into their motor coordination and if they are possibly inebriated, providing alternatives to diagnostic methods that rely on specialized machines.

Generally, people have a typing style that, while possessing variation, is fairly consistent. Given this, along with the fact that motor impairment would hinder the coordination required to type, it should be possible to infer whether one is impaired based on the regularity of one's typing. This has been supported by research regarding mobile typing and Parkinson's disease by Giancardo et al. However, the limits of this approach's precision in impairment detection remain unclear, leading to the question of if it can be used for more subtle impairments like that caused by inebriation.

To this end, we propose a set of signal-processed features based on covariance, Euclidean distance, and analysis of errors using the backspace key to capture signs of inebriation-related motor impairment. These features were tested with a population of 5 sober individuals and 21 individuals of varying levels of intoxication, achieving sensitivity/specificity of 0.9236 for the best performing model.