December 13, 2022

Qian Zhang, Ph.D.
Editor-in-Chief
IEEE Transactions on Mobile Computing

Dear Dr. Zhang:

Please find enclosed a research article submission to IEEE Transactions on Mobile computing entitled *"Realistic Modeling of Human Timings for Wearable Cognitive Assistance"*.

This manuscript presents two main contributions. We first introduce a stochastic model for human behavior in the context of Wearable Cognitive Assistance (WCA). This model is built from data collected for our previous work in "Impact of delayed response on wearable cognitive assistance" (Olguín Muñoz et al., 2021), and represents the first realistic end-to-end modeling approach for WCA. Given the difficulty of scalably and repeatably studying systems such as WCA which include a human-in-the-loop, we believe this model to be an important contribution to the development and expansion of this field of research.

Furthermore, we introduce a novel optimization framework for resource consumption-responsiveness trade-offs in these systems. We show that by combining these two contributions, we are able to obtain significant reductions — up to 50 % — in relevant metrics relating to system load and resource consumption, such as number of processed samples and raw energy consumption per logical application step. We believe these results provide key insights for developers and researchers working on developing and benchmarking WCA applications as well as on cost-efficient strategies for resource allocation in these systems.

We do not have any opposed reviewers or editors.

I will be serving as the corresponding author for the manuscript, assuming all the responsibilities this entails. All of the authors listed have agreed to the byline order and to submission of the manuscript, and understand that, if accepted for publication, a certification of authorship form will be required that will be signed by all of us.

Sincerely,

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