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Effects of Moving Speed and Phone Location on Eyes-Free Gesture Input with Mobile Devices

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Effects of Moving Speed and Phone Location on Eyes-Free Gesture Input with Mobile Devices

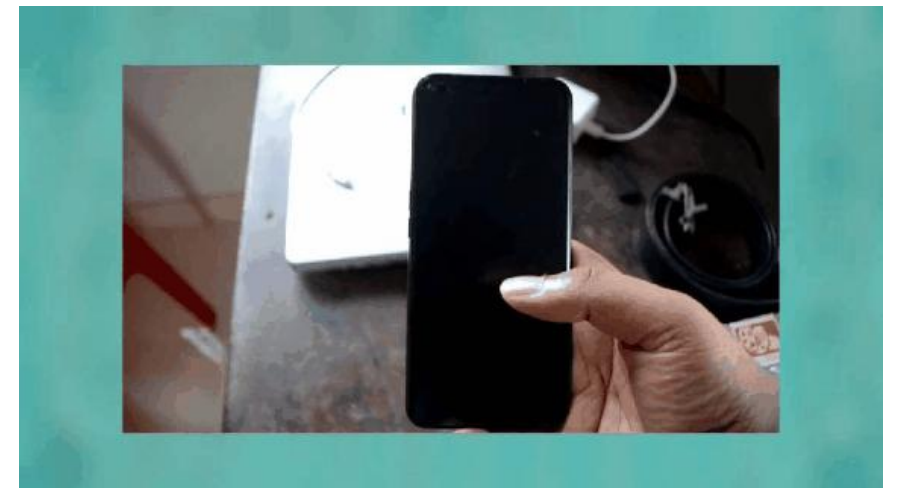
Authors: Milad Jamalzadeh, Yosra Rekik, Laurent Grisoni, Radu-Daniel Vatavu, Gualtiero Volpe, and Alexandru Dancu

Presenter: Milad Jamalzadeh



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- Using smartphones while moving is challenging and can be dangerous.
- Eyes-free input gestures can provide a means to use smartphones without the need for visual attention.



- We investigated the effect of different moving speeds
 - standing, walking, or jogging

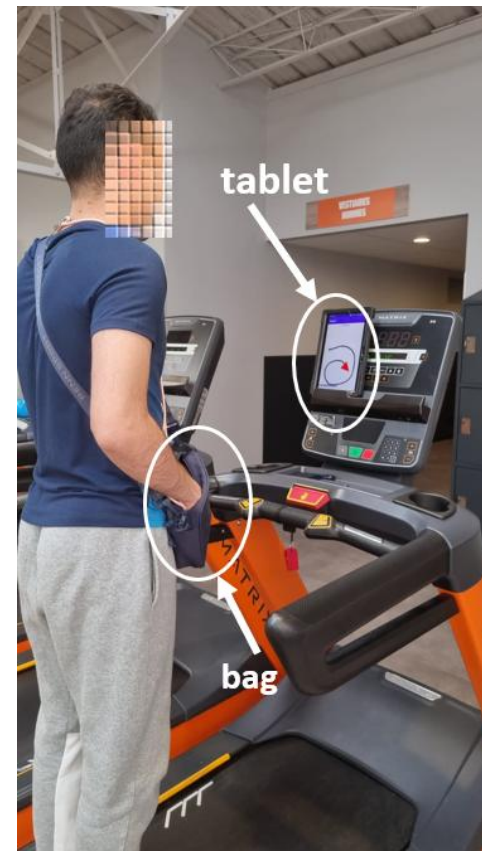


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Km/h

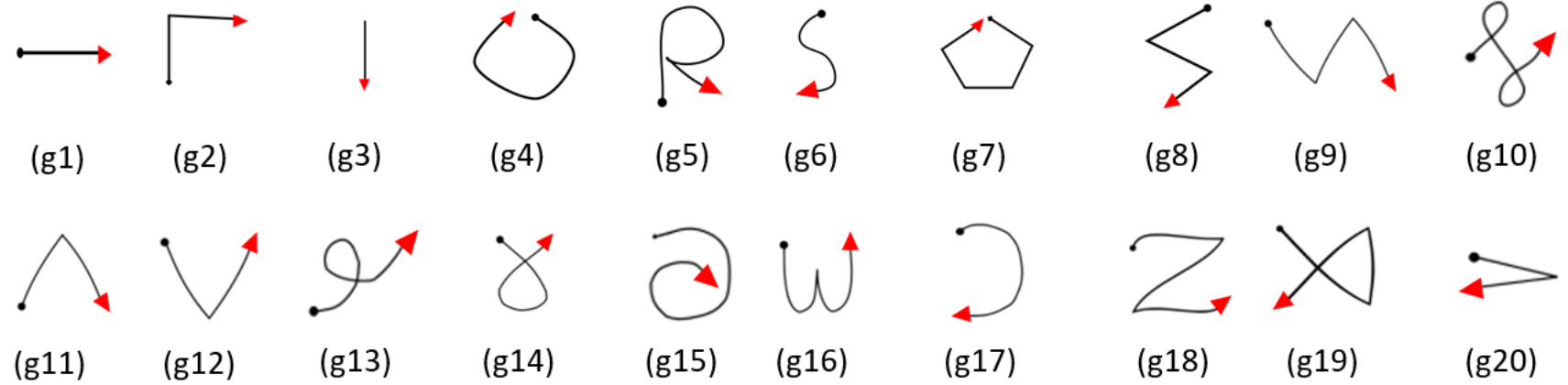
4.6
Km/h

8
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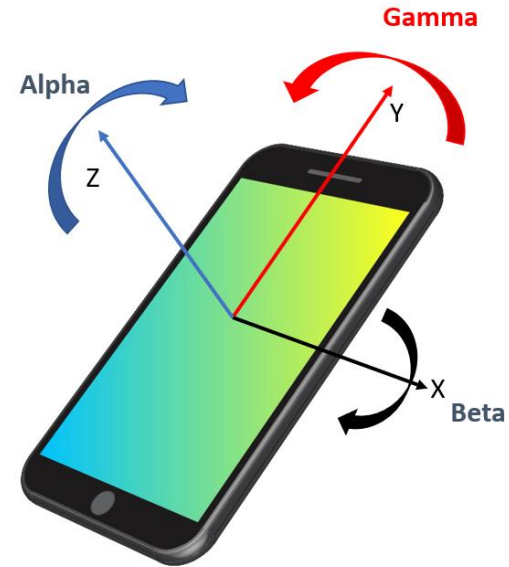
- and different phone locations on gestures:
 - phone held freely in the hand,
 - phone placed inside a shoulder bag.

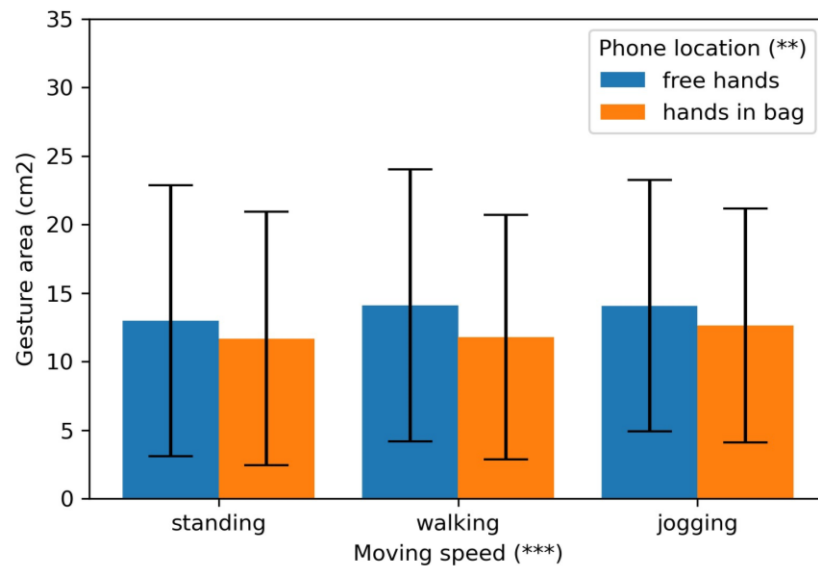
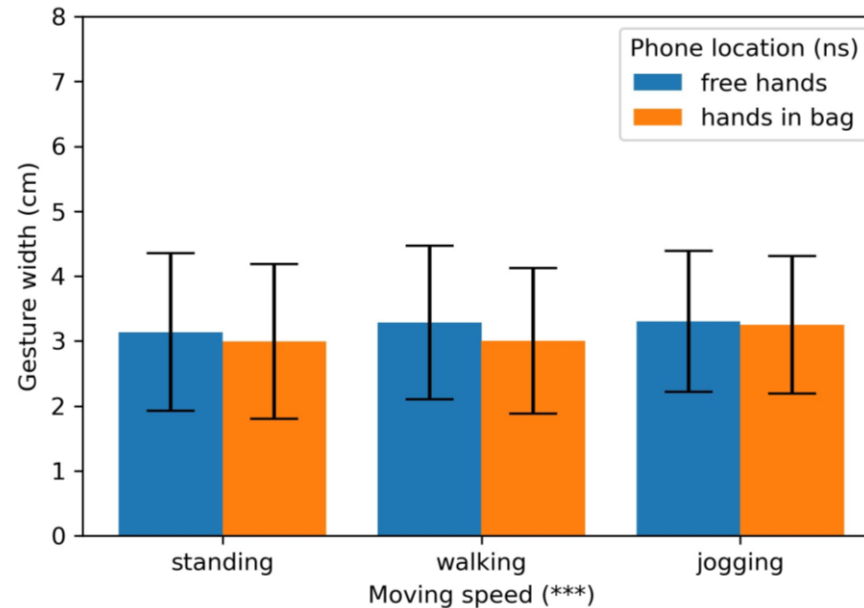
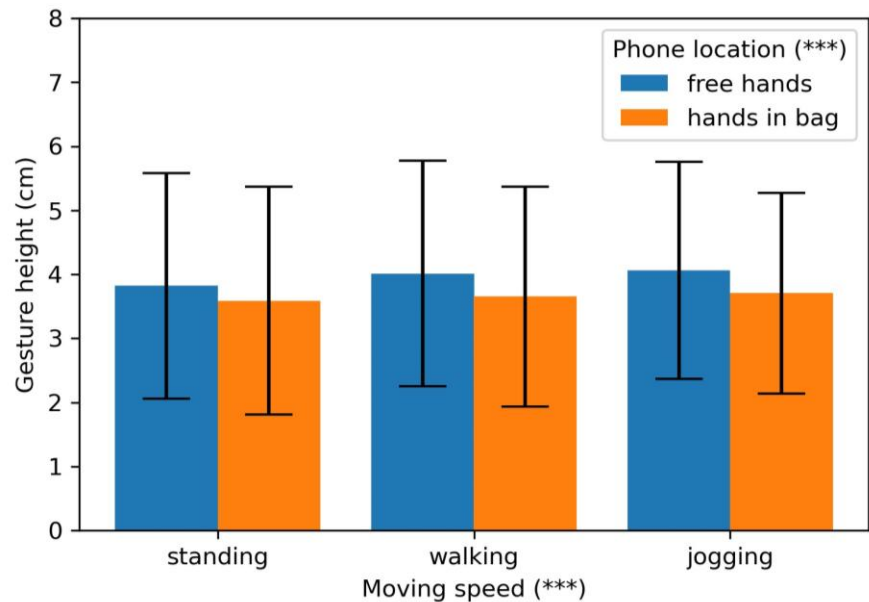


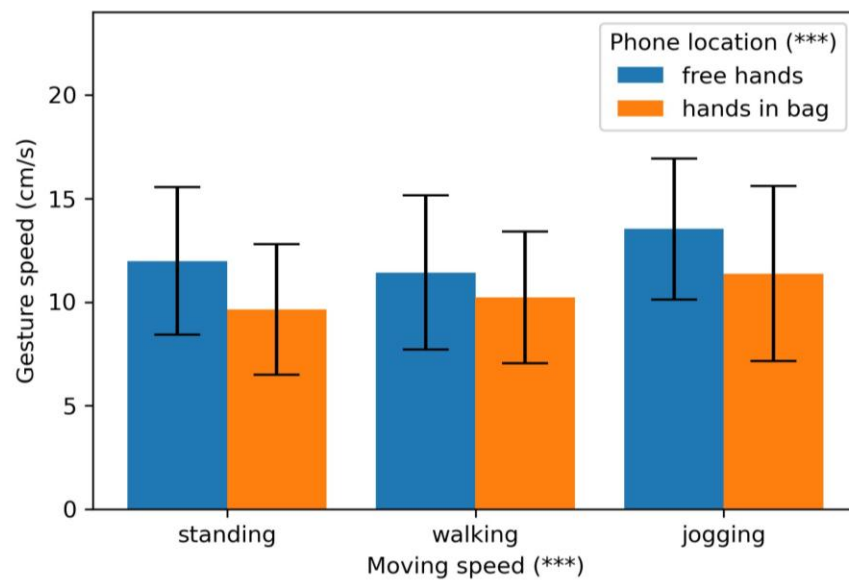
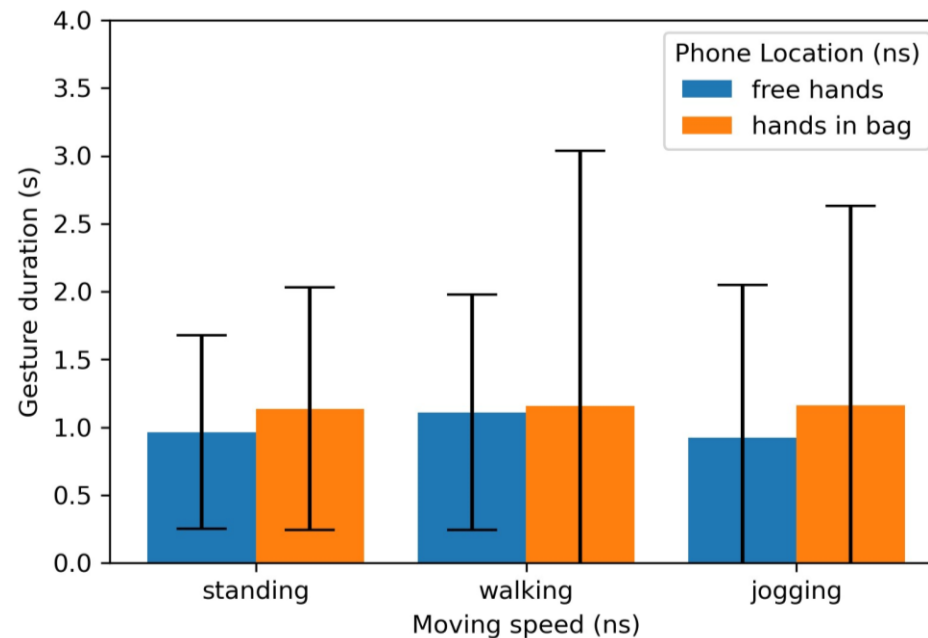
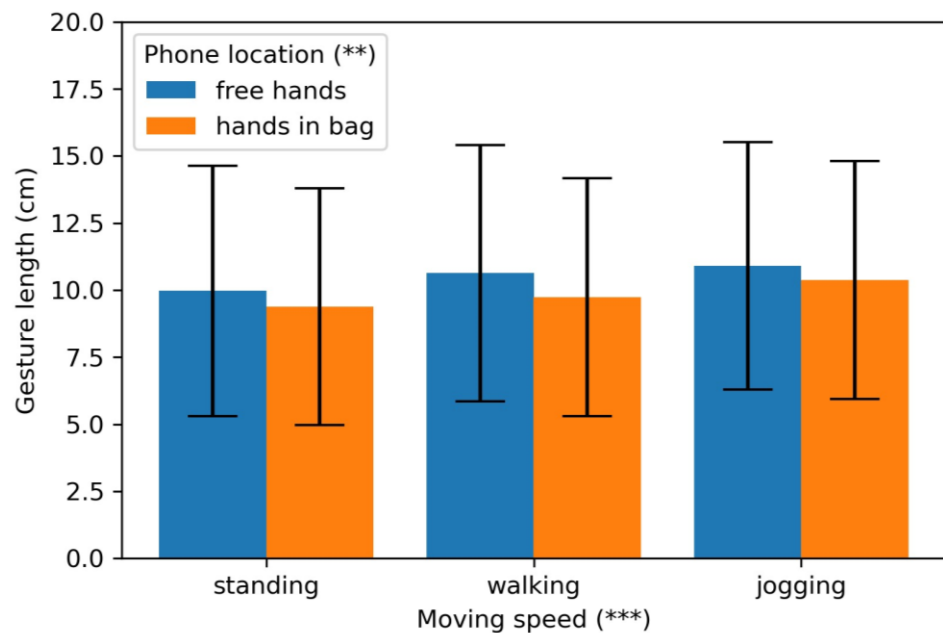
- ❖ 12 male participants
- ❖ 20 gestures with 5 repetitions for each condition



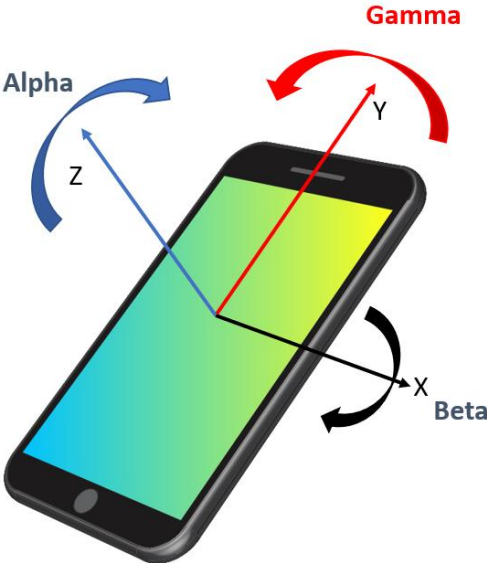
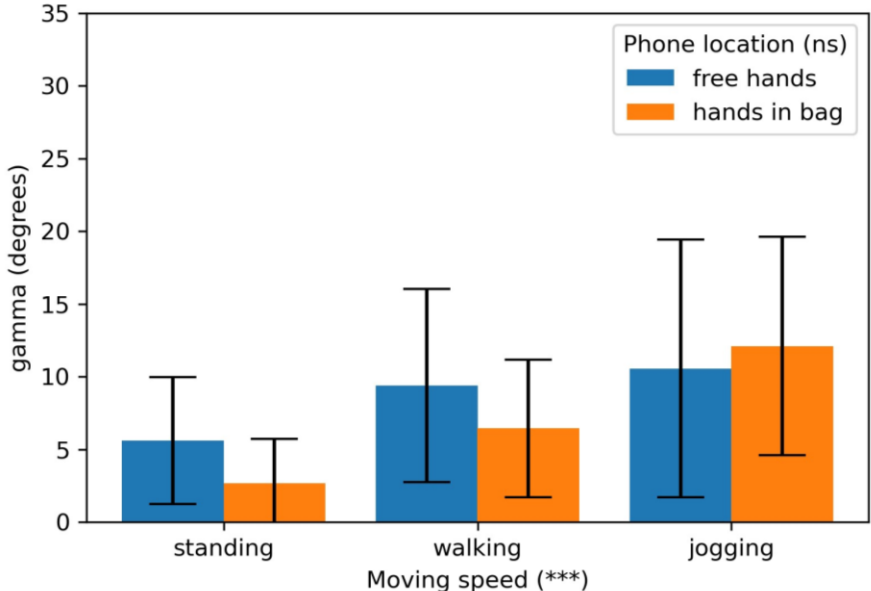
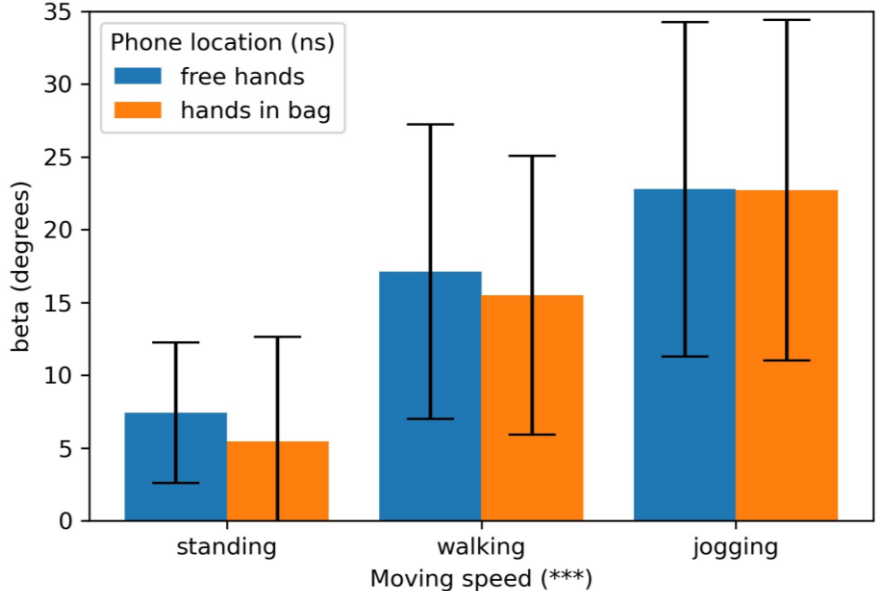
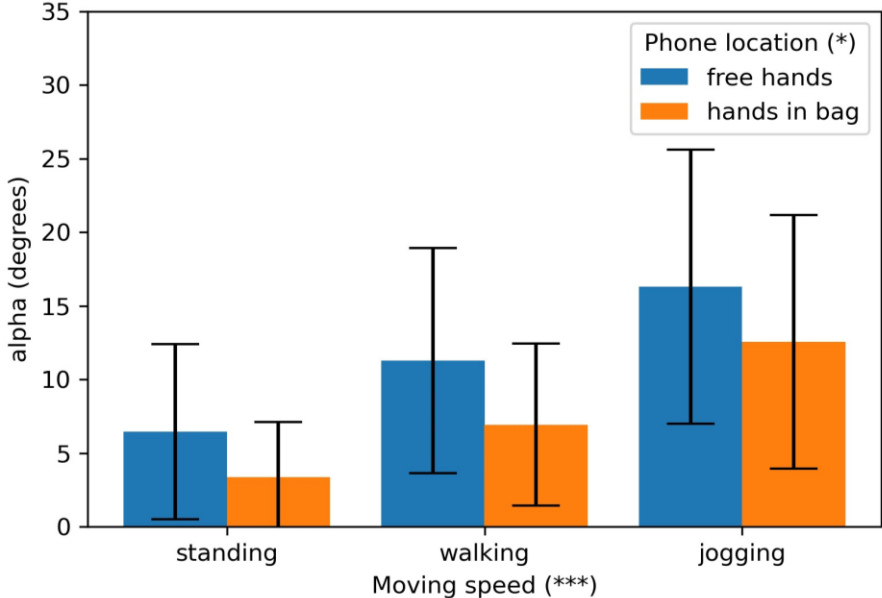
- ❖ Measured gesture features: width, height, length, area, duration, and speed
- ❖ Measured phone orientation: alpha, beta, and gamma







Results (phone orientation)



- ❖ Moving speed and smartphone location
 - Does not affect gesture duration
 - Does affect gesture length, height, width, area, and phone orientation
- ❖ Moving faster or holding the phone freely led to faster gestures without requiring less time to draw the gesture but instead longer gestures which caused the gesture entering speed to increase.
- ❖ The faster the user moves the longer, larger, and faster stroke gestures are produced.
- ❖ Inversely, when holding the phone in a bag, the produced gestures are slower, shorter, and smaller than when holding the phone freely.

Thank You
For Your Attention!

Any Questions

