

Model of Gesture Performance

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Keywords

Human-Computer Interaction, Gesture, stroke, command selection, user expertise

Summary

The goal of this internship is to build, implement and evaluate a model of gesture interaction

Description

Gesture-based interaction is an efficient input modality for selecting commands. However, it is not still clear how to design large gesture vocabulary, how to assign commands to gestures and what are the key factors explaining the success or failure of a given gesture set.

The goal of this internship is to build a novel model of gesture performance to (1) establish a fundamental understanding of gesture-based interaction and to (2) help designers to create gesture-based interaction.

We will work with the student to (1) identify the key factors that the model should take into account, (2) design a study to collect data and parameterize the model and (3) evaluate the model. We anticipate that this work will lead to a publication in a conference as ACM CHI.

The internship may last from 4 to 6 months and could serve as the foundation for a Phd thesis.

Required skills

- Basic knowledge about Human-Computer Interaction experimental psychology and/or cognitive science
- Programming skills (e.g. Qt, Java swing, python)
- Experience in modeling, data analysis is a plus

References

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- Shumin Zhai, Per Kristensson, Caroline Appert, Tue Andersen, and Xiang Cao. 2012. Foundational Issues in Touch-Surface Stroke Gesture Design: An Integrative Review. Found. Trends Hum.-Comput. Interact. 5, 2 (February 2012), 97-205.
- Gilles Bailly, Antti Oulasvirta, Duncan P. Brumby, and Andrew Howes. 2014. Model of visual search and selection time in linear menus. In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '14). ACM, New York, NY, USA, 3865-3874.

Context

The HCI group at the Université Pierre et Marie Curie has a strong track record at the CHI conference and is part of an exciting and multi-disciplinary laboratory (robotics, machine learning, perception, cognitive science, haptics, social interaction, etc.)