

Comparing the performance of keyboard and gestural shortcuts in realistic tasks

Duration : 4-6 months
Level : Master
Team : [Loki](#) (Inria Lille – Nord Europe & CRISAL) & [HCI Sorbonne](#) (Sorbonne University, CNRS, ISIR)
Recruiter : Sylvain Malacria (sylvain.malacria@inria.fr), Gilles Bailly (gilles.bailly@cnrs.fr)
Location : Sorbonne Université (Pierre-et-Marie-Curie campus) or Inria Lille - Nord Europe (Villeneuve d'Ascq)

This project in Human-Computer Interaction (HCI) consists in designing and running user experiments comparing the performance of various command shortcuts mechanisms in realistic tasks and contexts.

Contexts

Command selection is one of the most common activity performed on computer systems and most Graphical User Interfaces (GUIs) usually support two methods for selecting commands: either navigating through hierarchies (typically menu bars) and click on the target command; or using a dedicated *shortcut* (typically keyboard or gestural shortcuts) which offers faster command selection but requires user to memorize the shortcut beforehand.

While some studies have been conducted comparing shortcut mechanisms in abstract contexts [1], user performance with these mechanisms remain unclear as more realistic tasks introduce various factors likely to influence user performance with shortcuts.

Objectives

The candidate work will consist in:

- Studying related work on shortcut-based command selection.
- Implementing an experimental platform supporting pointer-based (menu bar), keyboard-based (hotkeys) and gesture-based (gestural shortcuts) command selection.
- Designing and conducting a user study investigating the performance of these various command selection mechanisms in realistic tasks. Various factors will be investigated, such as the task currently carried by the user, the number of successive command selections, etc.

Depending on the progress of the project, these results may be submitted as a research paper.

Collaboration

This project is in collaboration with Gilles Bailly from the ISIR Laboratory. The internship can take place either in the Loki research group, based in the Inria — Lille Nord Europe research centre at Villeneuve d'Ascq, or in the HCI Group of the ISIR, based in the Pierre et Marie Curie Campus of Sorbonne University in Paris. Regardless of its location, the internship will be co-supervised by both Sylvain Malacria and Gilles Bailly.

Candidate

A successful candidate must be MSc student in computer science or equivalent, and show a great interest in performing high quality research in Human-Computer Interaction. He or she must demonstrate experience or strong interest in software development. Creativity, independence, team working and communication skills are valuable advantages.

It is not required to speak French. A good level of technical and scientific English is also a plus.

If interested in this project, simply e-mail Sylvain Malacria (sylvain.malacria@inria.fr) and Gilles Bailly (gilles.bailly@cnrs.fr)

Reference

[1] Appert, Caroline, and Shumin Zhai. "[Using strokes as command shortcuts: cognitive benefits and toolkit support.](#)" Proceedings of the SIGCHI Conference on Human Factors in Computing Systems. ACM, 2009.