Comparing the performance of keyboard and gestural shortcuts in realistic tasks

**Duration:** 6 months  
**Teams:** Loki (Inria Lille - Nord Europe & CRISTAL) & HCI Sorbonne (Sorbonne University, CNRS, ISIR)  
**Supervisors:** Sylvain Malacria (sylvain.malacria@inria.fr), Gilles Bailly (gilles.bailly@upmc.fr)  
**Location:** Sorbonne Université (Paris) or Inria Lille - Nord Europe (Villeneuve d’Ascq)

The project consists in designing and running user experiments comparing the performance of various command shortcuts mechanisms in realistic tasks and contexts.

**Description**

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.
- Implement an experimental platform supporting pointer-based (menu bar), keyboard-based (hotkeys) and gesture-based (gestural shortcuts) command selection.
- Designing, implementing 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.

**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 speak and write English fluently, and experience or strong interest in software development. Creativity, independence, team working and communication skills are valuable advantages.

**Environment**

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

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Villeneuve d’Ascq, or in the HCI Group of the ISIR, based in the Université Pierre et Marie Curie in Paris. Regardless of its location, the internship will be co-supervised by both Sylvain Malacria and Gilles Bailly.

Reference