

Notice of dissertation defense

09.05.2018

Bye Bye QWERTY. Designing Better Methods for Text Input Using Computational Optimization.

Title	Assignment Problems for Optimizing Text Input
Content	<p>Reading out the first letters on a desktop keyboard, it says “QWERTY”. The same on the keyboard of a mobile phone, a car, or a virtual reality game. However, the way we select these letters is drastically different in each of these scenarios; one might use a single finger or many, a rotary control or arrow buttons, rest the arm comfortably on a table or hold it up in the air. Many researchers have challenged using the same QWERTY keyboard on any computing device. Given the distribution of letters in English and the way of selecting them, they have used <i>optimization methods</i> to compute the best arrangement of the keys that allows to type fastest. This dissertation goes a step further and proposes new techniques for optimizing keyboards and completely novel text input methods (e.g. using hand gestures in mid-air) not only for improving their performance but also to make them more ergonomic and easier to learn. The empirical studies conducted for developing these techniques, also advance the understanding of human performance and modern typing behavior. As one of the first, the dissertation studies those computer users that never took a formal typing course. Surprisingly, it found that typing speed is not necessarily related to the number of fingers used, but influenced by other factors such as visual attention on the typed text, consistent use of fingers, and parallelization of movements. This allows users to type fast even with just six or fewer fingers. On top of that, the work presented in this dissertation was applied in the development of a new French keyboard standard in collaboration with the French national organization for standardization, which influences the life of millions of people.</p>
Field of research	Human-Computer Interaction, Network Economics
Doctoral candidate	Anna Maria Feit, Master of Computer Science from Saarland University Born in Püttlingen, Germany, 1988
Date and time	11.06.2018 at 12:00
Place	Aalto University School of Electrical Engineering, hall T2, Konemiehentie 2, Espoo
Opponent	Dr. Shumin Zhai, Google Inc.
Supervisor	Professor Antti Oulasvirta, Aalto University School of Electrical Engineering, Department of Communications and Networking
Dissertation website	https://aaltodoc.aalto.fi/handle/123456789/53
Contact information	Anna Maria Feit, anna.feit@aalto.fi