Adaptive Text Entry for Mobile Devices

The reduced size of many mobile devices makes it difficult to enter text with them. The text entry methods are often slow or complicated to use. This affects the performance and user experience of all applications and services on the device. This work introduces new easy-to-use text entry methods for mobile devices and a framework for adaptive context-aware language models. Based on analysis of current text entry methods, the requirements to the new text entry methods are established. Transparent User guided Prediction (TUP) is a text entry method for devices with one dimensional touch input. It can be touch sensitive wheels, sliders or similar input devices. The interaction design of TUP is done with a combination of high level task models and low level models of human motor behaviour. Three prototypes of TUP are designed and evaluated by more than 30 users. Observations from the evaluations are used to improve the models of human motor behaviour. TUP-Key is a variant of TUP, designed for 12 key phone keyboards. It is introduced in the thesis but has not been implemented or evaluated. Both text entry methods support adaptive context-aware language models. YourText is a framework for adaptive context-aware language models that is introduced in the thesis. YourText enables different language models to be combined to a new common language model. The framework is designed so it can be adapted to different text entry methods, thereby enabling the language model to be transferred between devices. YourText is evaluated with a corpus of mobile text messages. The corpus is created by collecting all sent and received messages from 12 persons in four weeks. The corpus contains 25,000 messages. A model of text entry speed for TUP is created from the observations in the evaluations. The model is used to predict the performance of TUP, used together with different YourText language models.