

# 要 旨

## 携帯情報端末における手書き文字入力枠の最適値

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現在，市場に出回っている携帯情報端末における手書き文字入力枠のサイズは，ソフトウェアアプリケーションによって様々である．これは，携帯情報端末における枠サイズをどれくらいに設定すれば人間にとって最適なものが解明されていないためである．そこで，本論文では携帯情報端末における手書き文字入力枠サイズの最適値について，入力パフォーマンス（実験 1），人間の生理パラメータを用いた疲労度（実験 2）及び主観的評価（実験 1, 2）の 3 方向から検討した．なお，本論文では最適値を使用者の疲労を最小限に抑え，入力効率の優れた枠サイズと定義した．実験の結果，枠サイズの最適値（英数字）が 1.44 x 1.44 cm 付近であることを明らかにした．また，実験 1 の結果では更に，ひらがな・カタカナ，かな混じり漢字のときも英数字と同じく最適値が 1.44 x 1.44 cm 付近にあることを明らかにした．枠数との関連についても考察した．

キーワード 携帯情報端末，ペン入力，文字入力枠，最適値，パフォーマンス評価，生理評価

# Abstract

## The Optimal Sizes for Pen-Input Character Boxes on Handheld Devices

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Software applications for handwritten character input on handheld devices (such as PDAs: Personal Digital Assistants) usually show two, but some have four - eight character boxes. However, the optimal size for handwritten character boxes has not been clearly established. This study seeks to determine the optimal size for pen-input handwritten character boxes on PDAs inside which users can most efficiently write English, Chinese, hiragana, alphanumeric characters, and so on. The results will be assessed in terms of high performance factors such as high character recognition rate, minimal stroke protrusions outside the character box (experiment 1); high subjective ratings (experiments 1 and 2), and physiological data such as brain waves (experiment 2). The last term is a unique evaluation approach which allows us to investigate what kind of character boxes a user can write in while maintaining an implicit relaxed state. The analyses of the results of experiments 1 and 2 show that the optimal size of character boxes for the input of alphanumeric characters is approximately 1.44 x 1.44 cm. Moreover, in the result of experiment 1, it was shown that the optimal value is near 1.44 x 1.44 cm further at the time of the hiragana and katakana, and the kana mixture Chinese character as well as the alphanumeric character. In addition, the relationships between the size of character boxes and the number of character boxes was also discussed. These results may be regarded as a reflecting universal characteristics of the human use of

character boxes. We believe that knowledge of the optimal size of a character input box will be useful when designing the screen interface of PDAs.

***key words*** PDAs, Pen-Input, Character Box, Optimal Size, Performance evaluation, Physiological evaluation