

# 要 旨

## 文章筆記における 手書き過程の特性分析

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手書き過程で生じる特性の相互関係，及び相互関係が生じる原因については明らかになっていない．本論文は手書き過程における特性間の相関関係の分析を行ったものである．特性としては①筆圧，②方位角，③傾斜角，④速度，⑤加速度の 5 種類，分析項目としては (a) 特徴点間における同種の特性の相関，(b) 特徴点間における異種の特性の相関，(c) 各特徴点における相関係数の平均の 3 種類を採用した．これらを筆記速度の変化や，高い相関係数が出現する出現率の観点などから分析を行った．実験により (a) では筆圧，方位角，傾斜角が強い相関を持ち，筆圧は筆記速度が遅くなるほど相関係数が高くなり (b) では一部の特徴点において筆圧と速度，筆圧と加速度，筆圧と傾斜角，速度と加速度に強い相関があり (c) では速度，加速度は特徴点における相関係数の違いは見られないが，筆圧ではストロークの始点，終点の近辺の特徴点，傾斜角，方位角ではストロークの 1 点目において相関係数が低くなる傾向があるという結果を得た．

キーワード 手書き文字，筆圧，方位角，傾斜角，相関係数

# Abstract

## Characteristic analysis of hand-writing process in documents

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It is not clarified about interrelation between characteristics and the cause of interrelation in characteristic caused in handwriting process. This paper describes the analysis result of correlation between the characteristics in handwriting process. The writing pressure, azimuth, altitude, writing speed and writing acceleration were chosen as five characteristics. The analysis item is the following three; (a) Correlation of homogeneous characteristic between the feature points, (b) Correlation of heterogeneous characteristic between the feature points, and (c) Average of correlation coefficient in each feature point were adopted. Analysis from a viewpoint in change of writing speed and appearing rate of a high correlation coefficient were performed. For (a), the result shows writing pressure, azimuth, and altitude has strong correlation, and the correlation coefficient of writing pressure increases as the writing speed becomes slow. For (b), strong correlation of some feature points was shown in the following relation; writing pressure - speed, writing pressure - acceleration, writing pressure - altitude, and speed - acceleration. For (c), the result shows although the difference of correlation coefficient concerning writing speed and writing acceleration is not observed in feature points, the correlation coefficient of writing pressure tends to lower in the feature points in neighborhood in starting point / end point of the stroke, and the correlation coefficient of azimuth and altitude tends to lower in the first point of the stroke.

*key words* hand-written character, writing pressure, azimuth, altitude, correlation coefficient