

Table 5: All Raw Data for Feature Extraction

Number	Category	Description	Relationship Description
D1	Binary image	Binary image of this line	
D2	Time domain signal	Horizontal position of pen tip at each moment	
D3	Time domain signal	Vertical position of pen tip at each moment	
D4	Time domain signal	Pressure of pen tip at each moment	
D5	Time domain signal	Altitude of pen tip at each moment	
D6	Time domain signal	Azimuth of pen tip at each moment	
D7-D11	Time domain signal	The velocity of the pen tip in the horizontal direction / vertical direction/ pressure / altitude/ azimuth at each moment	Take the first derivative of D2-D6 respectively
D12-D16	Time domain signal	The acceleration of change of the pen tip in the horizontal direction/ vertical direction / pressure/ altitude/ azimuth at each moment	Take the second derivative of D2-D6 respectively
D17-D21	Time domain signal	The jerk of change of the pen tip in the horizontal direction / vertical direction/ pressure/ altitude/ azimuth at each moment	Take the third derivative of D2-D6 respectively
D22-D26	Time domain signal	The spasm of change of the pen tip in the horizontal direction / vertical direction/ pressure/ altitude/ azimuth at each moment	Take the fourth derivative of D2-D6 respectively
D27-D51	Frequency domain signal	Amplitude spectrum corresponding to all time domain signals	Take the amplitude spectrum of D2-D26 respectively
D52-D76	Frequency domain signal	Energy spectrum corresponding to all time domain signals	Take the energy spectrum of D2-D26 respectively
D77-D101	Frequency domain signal	Power spectrum corresponding to all time domain signals	Take the power spectrum of D2-D26 respectively
D102-D126	Frequency domain signal	Power density spectrum of periodogram method corresponding to all time domain signals	Take the power density spectrum of D2-D26 by the periodogram method respectively
D127-D151	Frequency domain signal	Power density spectrum of parametric estimation method corresponding to all time domain signals	Take the power density spectrum of D2-D26 by the parametric estimation method respectively

This table describes all the raw data used for feature extraction. The features in Tables 6, 7, and 8 are all calculated based on this data.