Table 1: Summary of Geometric Features Formulas

Feature	Description
Sum of eigenvalues	$\lambda_1 + \lambda_2 + \lambda_3$
Linearity	$(\lambda_1 - \lambda_2)/\lambda_1$
Planarity	$(\lambda_2 - \lambda_3)/\lambda_1$
Sphericity	λ_3/λ_1
Omnivariance	$(\lambda_1\lambda_2\lambda_3)^{1/3}$
Eigenentropy	$-\sum \lambda_i \ln \lambda_i$
Surface variation	$\lambda_3/(\lambda_1 + \lambda_2 + \lambda_3)$
Anisotropy	$(\lambda_1 - \lambda_3)/\lambda_1$
Absolute Moment (6)	$\frac{1}{\lvert N\rvert}\left\lvert\sum \langle p - p_0, e_i\rangle^k\right\rvert$
Vertical moment (2)	$\frac{1}{\lvert N\rvert}\sum \langle p - p_0, e_3\rangle^k$
Verticality	$1 - \lvert\langle \hat{e_3}, e_3\rangle\rvert$

Refer to the detailed explanations in Section 3.3 of this work :

« Sevgen, E.; Abdikan, S. Classification of Large-Scale Mobile Laser Scanning Data in Urban Area with LightGBM. *Remote Sens.* **2023**, *15*, 3787. https://doi.org/10.3390/rs15153787 »