

Knowledge Manifold Prompt Manual

English Translation of the Prompt Specification Document

- (1) Map these 20 papers into the same character n-gram TF-IDF space, and L2-normalize each document vector. Limit the number of dimensions to 250,000 or fewer. Place each paper on a two-dimensional knowledge map ($-1 < x < 1$, $-1 < y < 1$). In particular, place four representative papers at $(-1, -1)$, $(1, -1)$, $(1, 1)$, and $(-1, 1)$.
- (2) Create a schematic diagram of the map.
- (3) At the specified evaluation point $(0.25, 0.75)$, estimate the knowledge vector by using all 20 papers and the SPH interpolation method, and verbalize it in Japanese based on the TF-IDF features. Verbalize it.
- (4) At the specified evaluation point $(0.25, 0.75)$, calculate the knowledge gradients in the x and y directions using SPH-method techniques, and verbalize them. In addition, evaluate the similarity between the directions by using the inner product. Also create a schematic diagram.
- (5) Use GPR to obtain the predictive mean and uncertainty at the same evaluation point, and verbalize the results. Calculate the contribution rate of each paper by Bayesian estimation. Also create a schematic diagram.
- (6) Provide a 500-character paper that is expected at this evaluation point $(0.25, 0.75)$.
- (7) For the direction vectors obtained at 0 degrees (x direction), 45 degrees, and 90 degrees (y direction), verbalize them in Japanese based on the TF-IDF features. Also create a schematic diagram.
- (8) Solve the geodesic equation, using a finite-difference approximation if sufficient, from $(0.25, 0.75)$ to $(-0.3, 0.35)$, and show the resulting path points in the mapping space.