

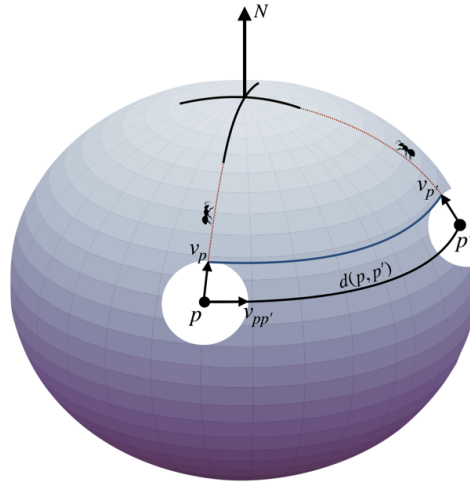


Figure S1. Geodesics obtained by parallel transport converge on a space with positive curvature. To see that the sphere has positive curvature, consider a point p , two tangent vectors v_p and $v_{pp'}$ at p perpendicular to each other and another point p' obtained by parallel transport of v_p in the direction of $v_{pp'}$ which results in the tangent vector $v_{p'}$ at p' . Then the geodesic from p in the direction of v_p will converge with the geodesic from p' in the direction $v_{p'}$ at the top of the sphere.

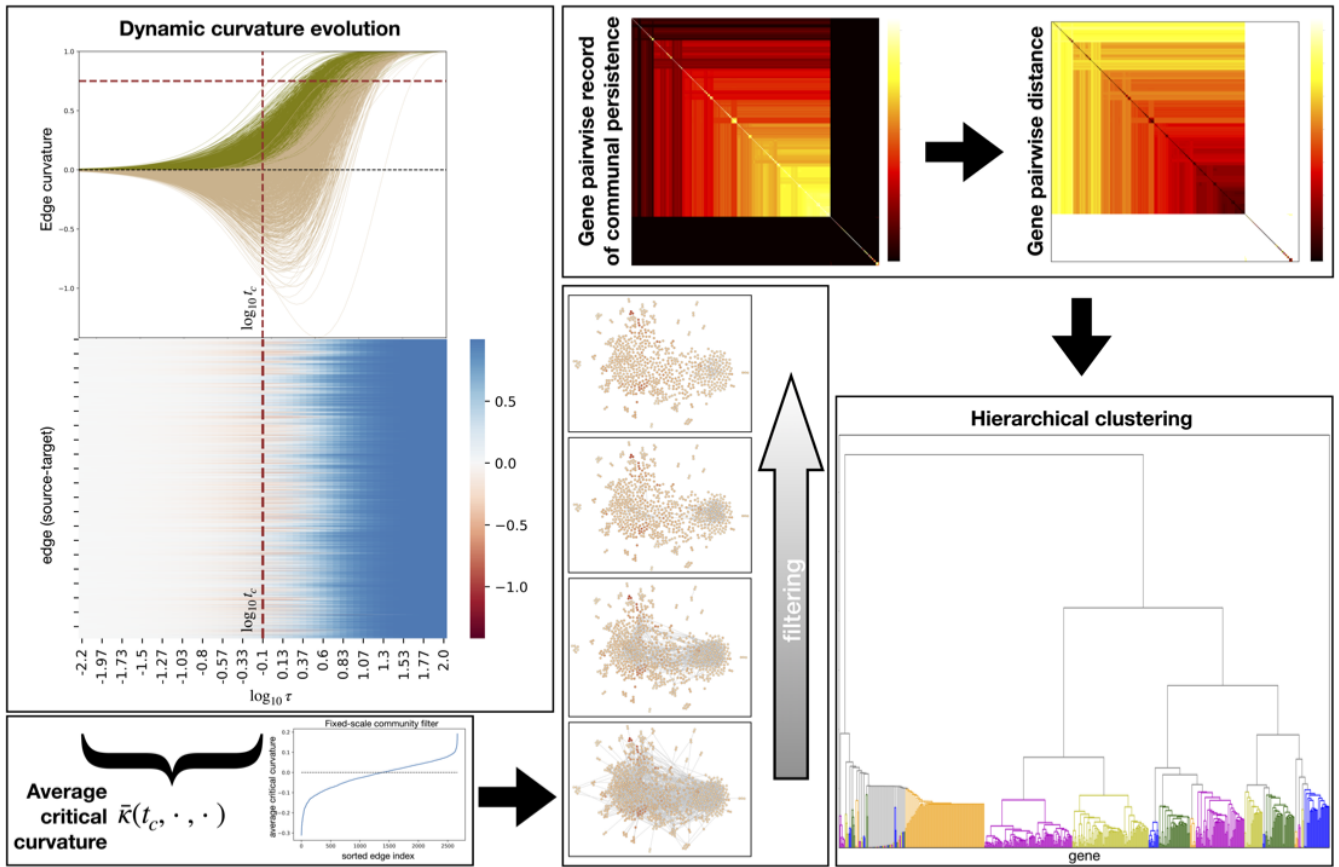
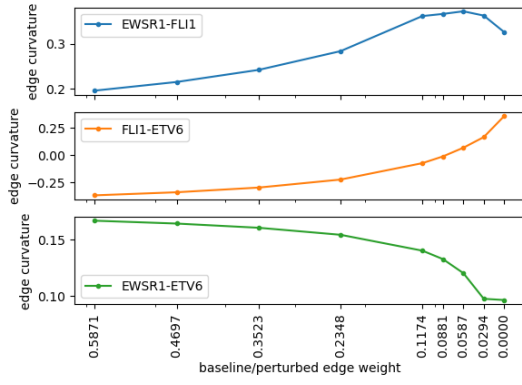
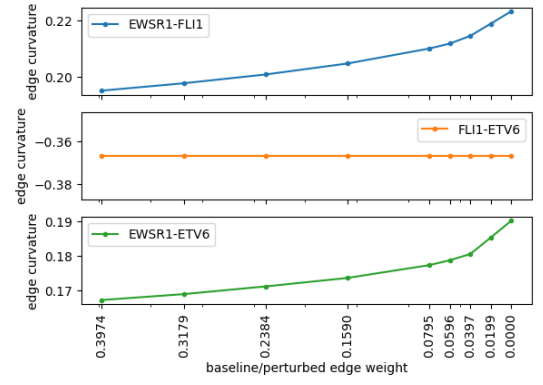


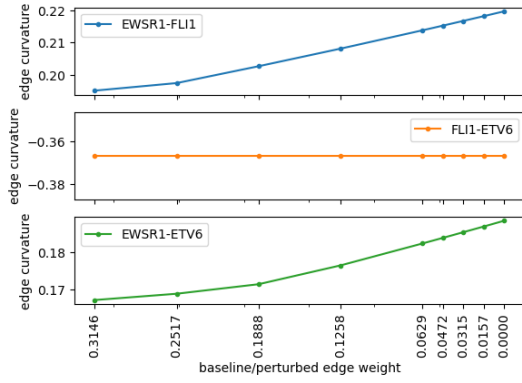
Figure S2. Hierarchical dynamic curvature clustering pipeline.



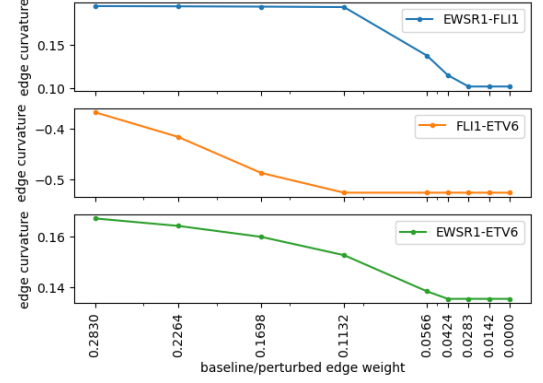
(a) Simulated perturbation of edge ERG-FLI1



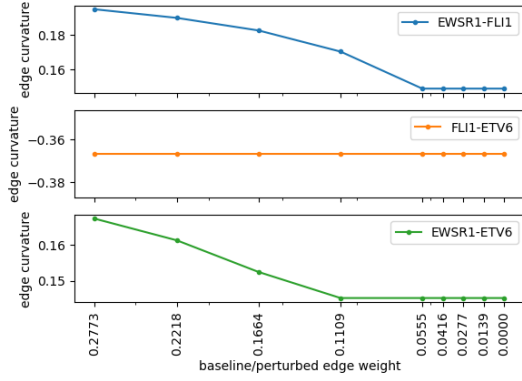
(b) Simulated perturbation of edge EWSR1-ERCC5



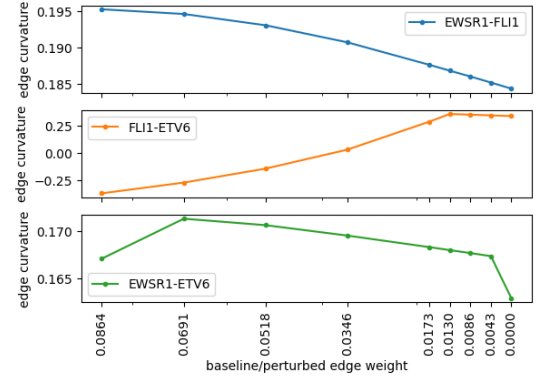
(c) Simulated perturbation of edge EWSR1-PCBP1



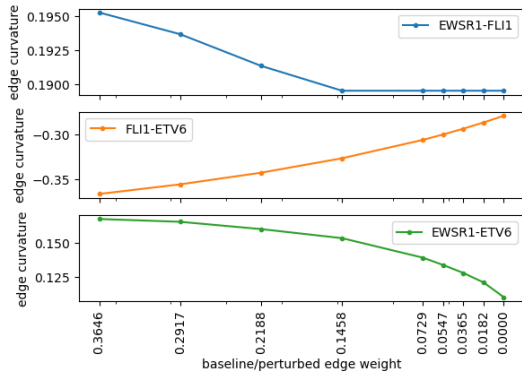
(d) Simulated perturbation of edge JUN-ERG



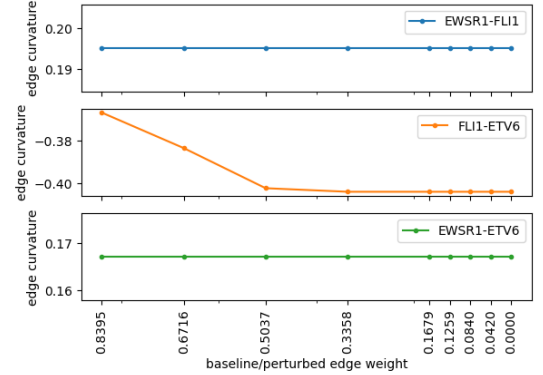
(e) Simulated perturbation of edge AR-POU5F1



(f) Simulated perturbation of edge ETV6-FLI1



(g) Simulated perturbation of edge ETV6-GAB2



(h) Simulated perturbation of edge STAT1-SYK

Figure S3. Simulated edge perturbations.