

Anticipation Pipeline

cc-anticipation: MotionWindow → 7 Scalars + 3 Vectors

Input: MotionWindow

SkeletonFrames

50 frames @ 50Hz (1 second)

27 bones × 7 values per frame

Coverage Check

Minimum coverage required

coverage ≥ 0.9

Timestamps

Window time boundaries

t_start, t_end (microseconds)

Feature Extraction

Position → Velocity

First derivative: dp/dt

Velocity → Acceleration

Second derivative: d^2p/dt^2

Acceleration → Jerk

Third derivative: d^3p/dt^3

Regime Embedding

Motion character encoding

64-256 dimensions

Constraint Vector

Physical limits proximity

~8 dimensions

Output: AnticipationPacket

7 Scalars

Anticipation signals

regime_embedding

Motion regime vector

[64-256 dims]

constraint_vector

Physical constraints

[~8 dims]

derivative_summary

Dynamics summary

[~8 dims]

Primary Scalars

Commitment

[0, 1]

Secondary Scalars

Recovery Margin

[0, 1]