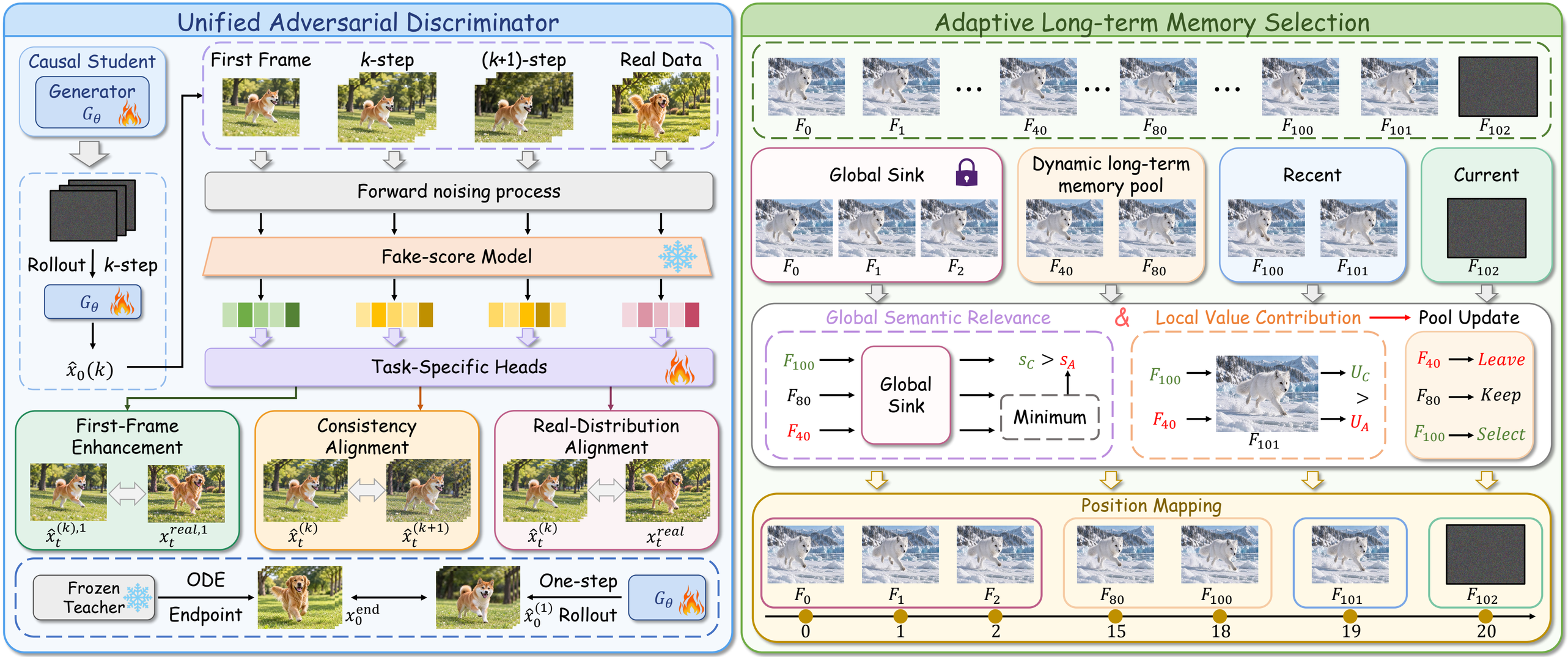

Unified Adversarial Discriminator
Causal Student
Generator
G_θ
Rollout
k-step
$\hat{x}_0(k)$
First Frame
k-step
(k+1)-step
Real Data
Forward noising process
Fake-score Model
Task-Specific Heads
First-Frame Enhancement
$\hat{x}_t^{(k),1}$
$x_t^{real,1}$
Consistency Alignment
$\hat{x}_t^{(k)}$
$\hat{x}_t^{(k+1)}$
Real-Distribution Alignment
$\hat{x}_t^{(k)}$
x_t^{real}
Frozen Teacher
ODE
Endpoint
x_0^{end}
One-step
$\hat{x}_0^{(1)}$
Rollout
G_θ
Adaptive Long-term Memory Selection
F_0
F_1
F_{40}
F_{80}
F_{100}
F_{101}
F_{102}
Global Sink
Dynamic long-term memory pool
Recent
Current
F_2
Global Semantic Relevance
&
Local Value Contribution
Pool Update
Global Sink
$s_C > s_A$
Minimum
U_C
>
U_A
F_{40} Leave
F_{80} Keep
F_{100} Select
Position Mapping
0
1
2
15
18
19
20