Entry point User Input Knowledge Compilation System Output External Memory Human-Al Conversation Dialog/Message Alpha Evaluation alpha013 expr: cwise mul(-1, rank(... alpha001 1. Please exploit momentum effect in volume and price expr: cwise mul(-1, ts corr(... desc: The idea is that stocks with stronger Top Alphas **Risk Evaluation** data to find some patterns that are useful for trading. desc: the alpha expression aims to 2. Apply smoothing techniques to make the signal more momentum and higher correlation between 1. ts ir(close, ts delta(. Retrieve capture the correlation between price and volume are more likely to robust. 2. grouped demean(... changes in trading volume ... experience continued price movements 3. Add some confirmation signals to make the signal more 3. ts rank(returns, 5) robust. 4. Use some other techniques to make the signal more **Prompt Template Backtest Results** Interpretation Mainly capture price ## Specification ## Trading Ideas ## Examples Expression Search Directions momentums, suggested {user input} {retrieved memory} greater(ts_argmin(ts_delta industry neutralization to {prob_crossover: 0.4, Combine ## Instructions Now, please write me at (close, 1), 5), 0) and prob point mutation: reduce risk exposure ... least 10 such expressions. ts_zscore(volume, 5) > 2 0.25,} Request Request **Alpha Searching Reasoning and Thought De-compilation Computing and Evaluation** LLM Output **LLM Input** Generated Alpha GP Configuration Evaluation Computing 1. Price Trend Confirmation Smoothed System Prompt User message ```pvthon You are a quant Trading idea minus(div(cwise max(minus(h generation 1: opeartor config zscore(ts_delta(ts_ema(ts_ran) researcher 1. Utilizes ... expr: ts ema(x, 5, 0.5)igh 1D, open 1D),... [{'cwise_mul': 3}, k(close, 10),) ## Instructions Examples fitness: greater(ts_rank_diff(c {'ts ema': 2},] train_ic: 0.02303 write python - alpha001 2c_1D, test ic: 0.01945 ```expr``` This expression calculates the expressions with... terminal config c2c 1D.shift(1)), 0) [{ 'name': 'close 1D', exponential moving average of the 1-## Specifications Description: ... expr: amount 'price degree': 1, day delta of volume over a 10-day operators: ... - alpha003 Evaluate fitness: train_ic: 0.02105 generation 2: 'is unitless': False window. It captures the momentum in... operands: ... }, {'name': 'c2c_1D', 'is_unitless': True, test ic: 0.01904 1.grouped_min(ts_delta (volume 1D,1),sw1 1D) expr: ts corr(volume, 2. ... 20230606 -0005877 0.006964 0.050137 0.047170 0.004235 20230607 0.006448 0.001905 0.008587 0.054554 0.09593 20230608 0.0159175 0.014468 0.008748 0.055641 0.09571 20230608 0.0519175 0.004409 0.006000 0.006547 20230609 0.051595 0.006409 0.000000 0.006547 20230612 0.001575 0.006407 0.001312 0.015544 0.006132 close, 5) **Initial Alphas** fitness: gp config train ic: 0.01984 ID **Formula** Description test ic: 0.01882 Backtest It measures the standardized change in 'selection': zscore(ts_delta(ts_ema(ts_rank(close,10),10,0.5),1)) the magnitude of smoothed price trends expr:grouped demean(ts del generation 20: 'tournament k', ta(close, 3), sw1_mask) 1.ts ema(ts delta(volu 'num rounds': 20, This expression calculated percentage Combine fitness: $me_1D,1),10,0.5)$ 'prob_crossover': 0.6, 02 div(ts delta(ts ema(close, 10, 0.5), 1), close) change in ema of volume. train ic: 0.01723 2. ... Captures volume change momentum test ic: 0.01655

It captures volume smoothed trend

confirmation

ts delta(ts rank(ts delta(volume, 1), 10, 1)