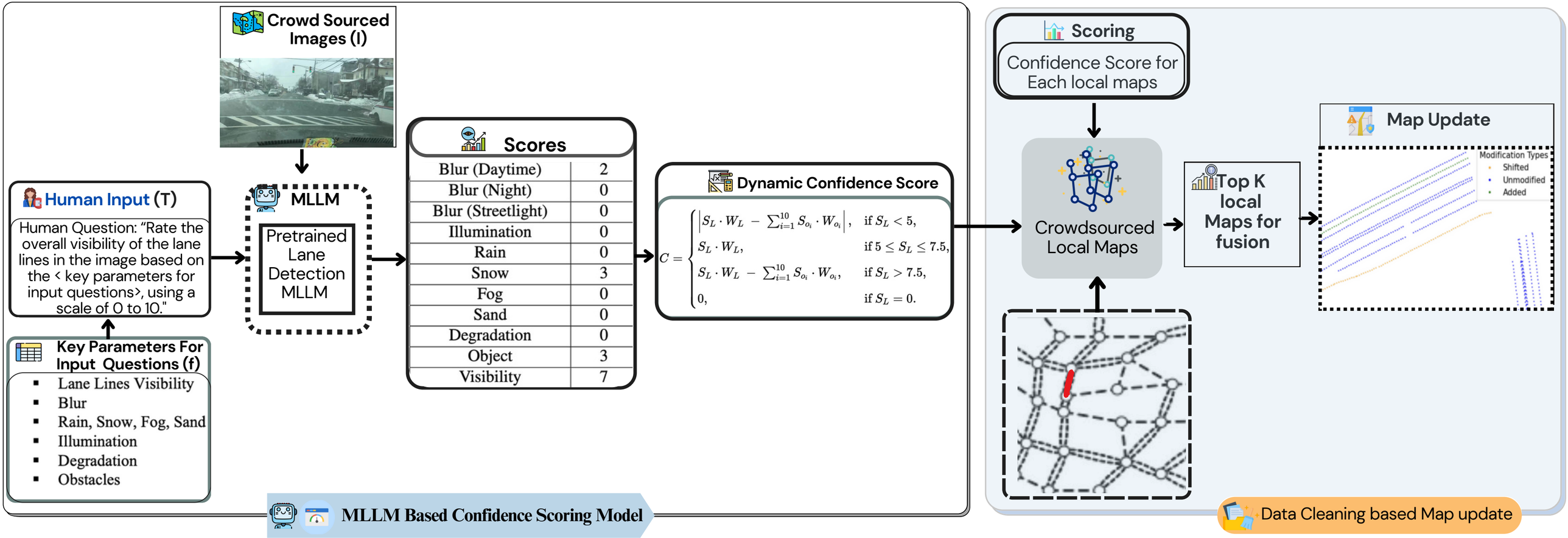
Crowd Sourced Images (I)
Human Input (T)
Human Question: "Rate the overall visibility of the lane lines in the image based on the < key parameters for input questions>, using a scale of 0 to 10."
Key Parameters For Input Questions (f)
Lane Lines Visibility
Blur
Rain, Snow, Fog, Sand
Illumination
Degradation
Obstacles
MLLM
Pretrained Lane Detection MLLM
Scores
Blur (Daytime) 2
Blur (Night) 0
Blur (Streetlight) 0
Illumination 0
Rain 0
Snow 3
Fog 0
Sand 0
Degradation 0
Object 3
Visibility 7
Dynamic Confidence Score
$C = \begin{cases} \left| S_L \cdot W_L - \sum_{i=1}^{10} S_{o_i} \cdot W_{o_i} \right|, & \text{if } S_L < 5, \\ S_L \cdot W_L, & \text{if } 5 \leq S_L \leq 7.5, \\ S_L \cdot W_L - \sum_{i=1}^{10} S_{o_i} \cdot W_{o_i}, & \text{if } S_L > 7.5, \\ 0, & \text{if } S_L = 0. \end{cases}$
MLLM Based Confidence Scoring Model
Scoring
Confidence Score for Each local maps
Crowdsourced Local Maps
Top K local Maps for fusion
Map Update
Modification Types
Shifted
Unmodified
Added
Data Cleaning based Map update