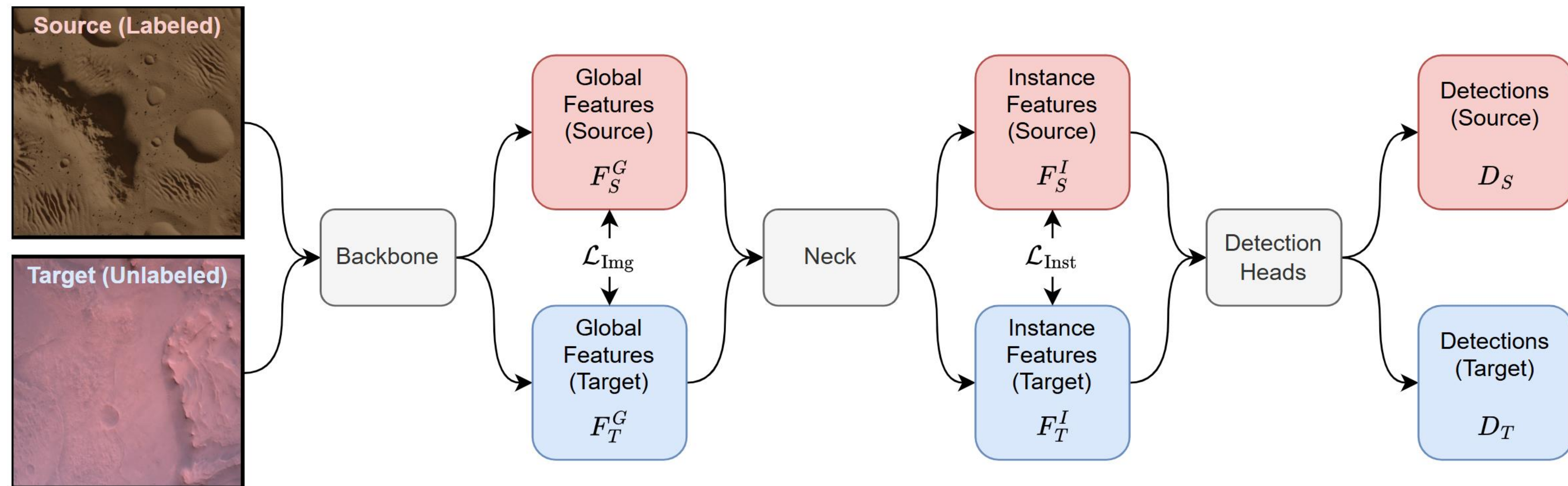
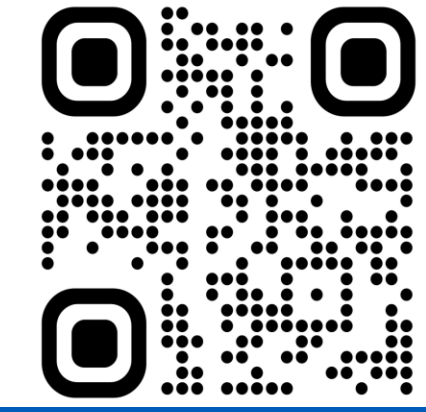


Domain Adaptation and Multi-view Attention for Learnable Landmark Tracking with Sparse Data

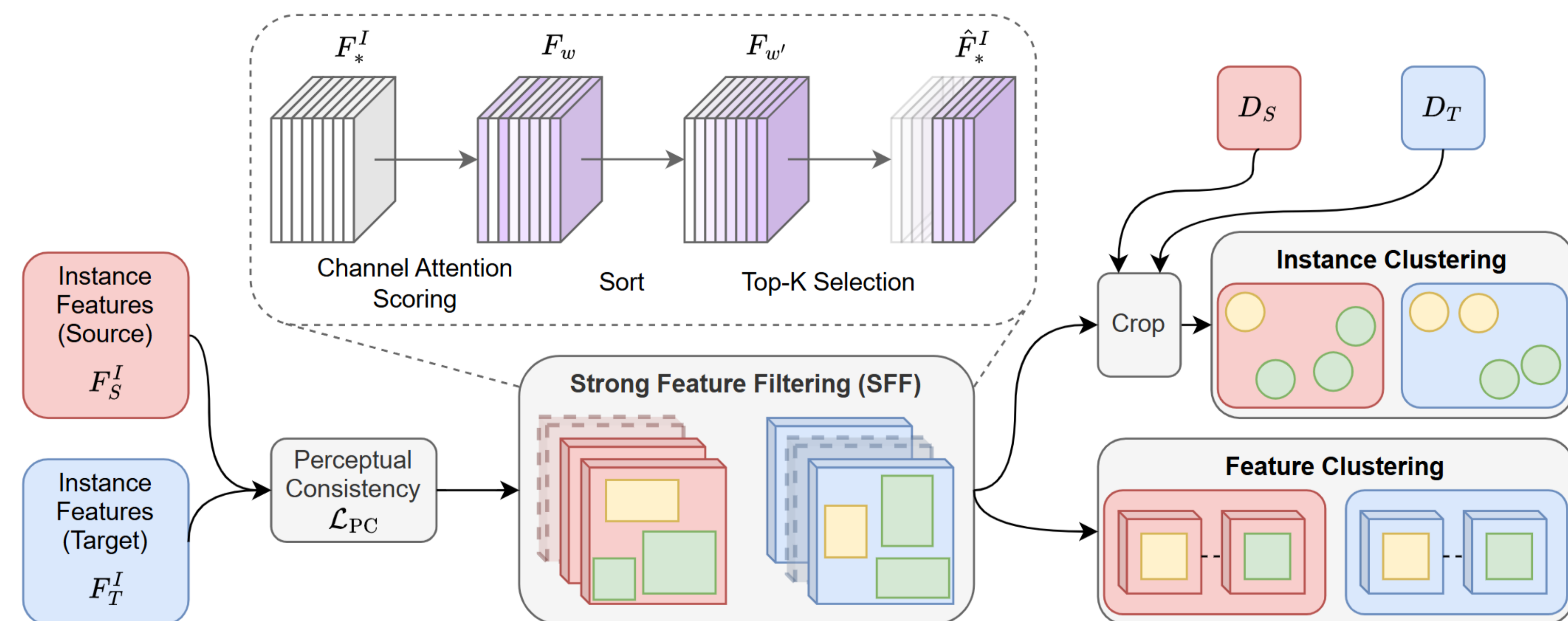
Timothy Chase Jr, Karthik Dantu
University at Buffalo



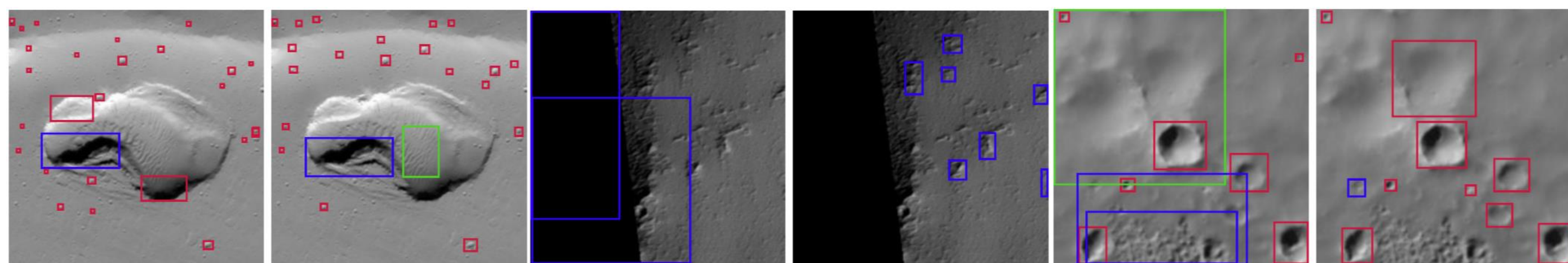
Domain Adaptation for Landmark Detection: *You Only Crash Once v2 (YOCOv2)*



Architecture aligns cheap source data (e.g., sim) with unlabeled target data.



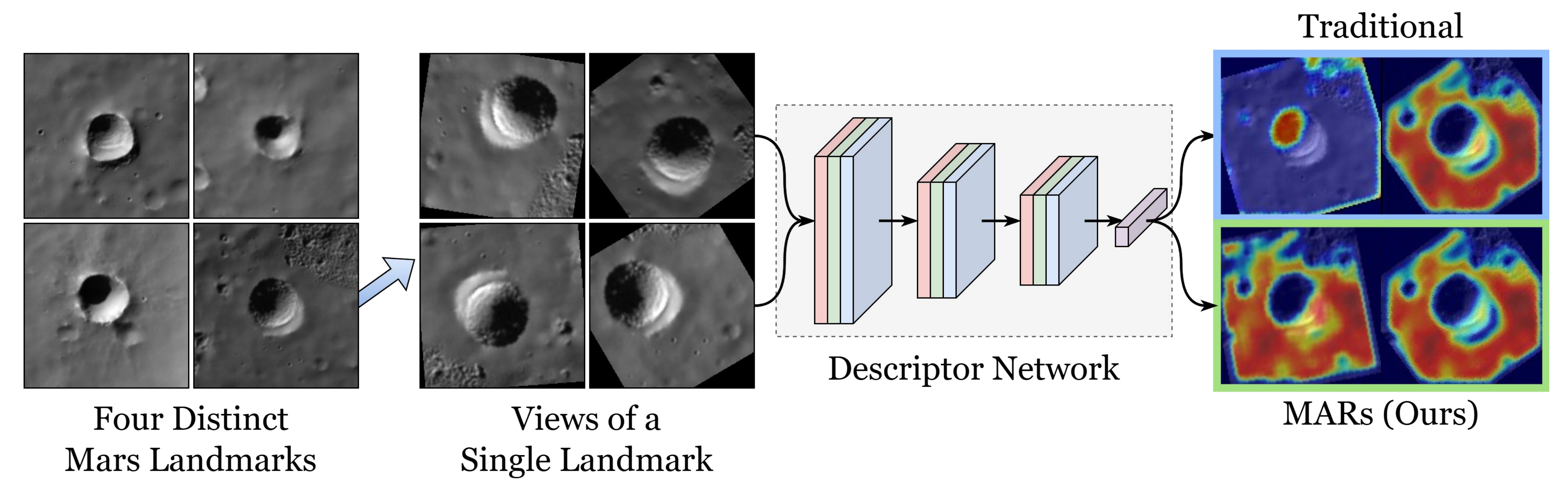
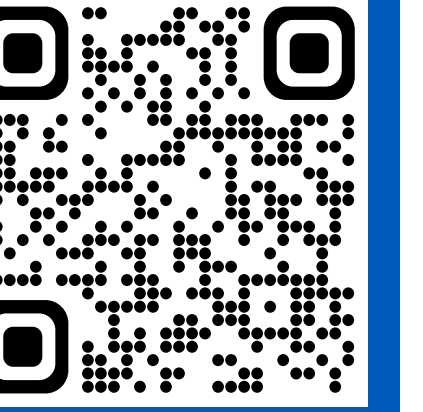
Feature selection and regularization improve the alignment process.



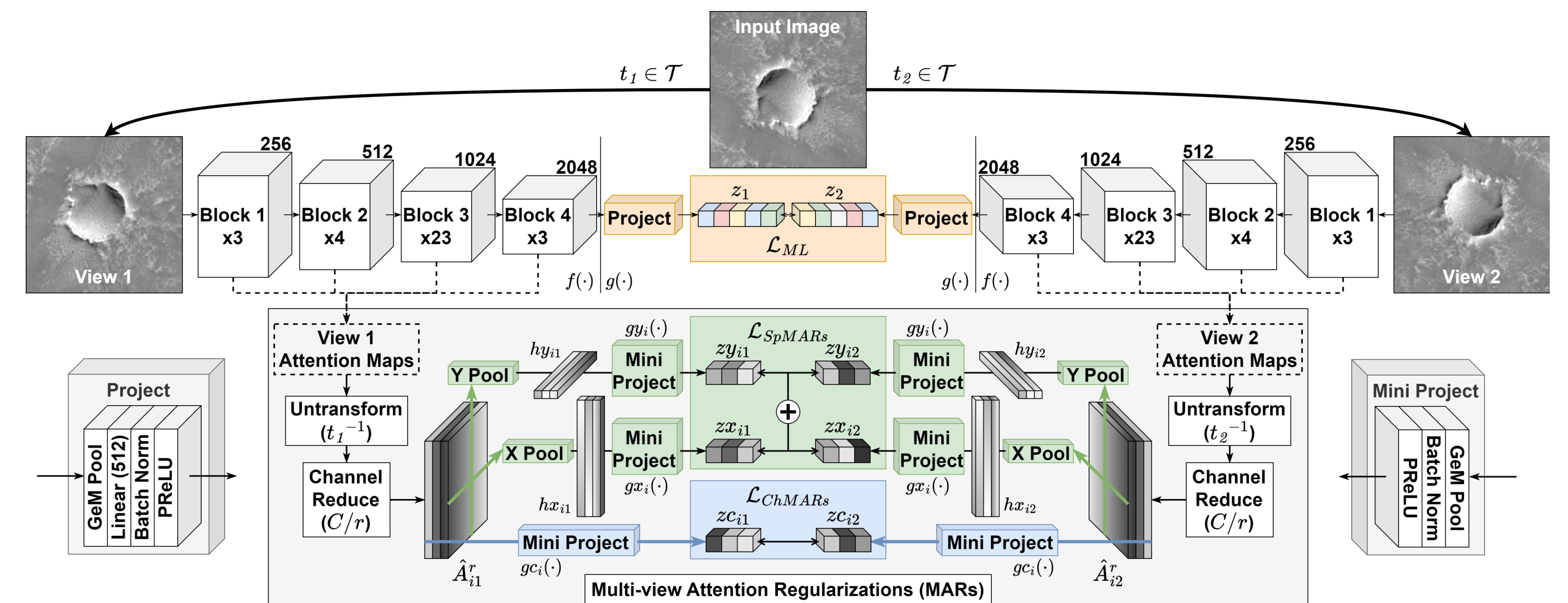
YOLO (Left), YOCO v2 (Right) || Crater (Red), Mountain (Blue), Dune (Green)

T. Chase Jr, C. Wilson, K. Dantu, "You Only Crash Once v2: Perceptually Consistent Strong Features for One-Stage Domain Adaptive Detection of Space Terrain", *Under Submission*, 2025

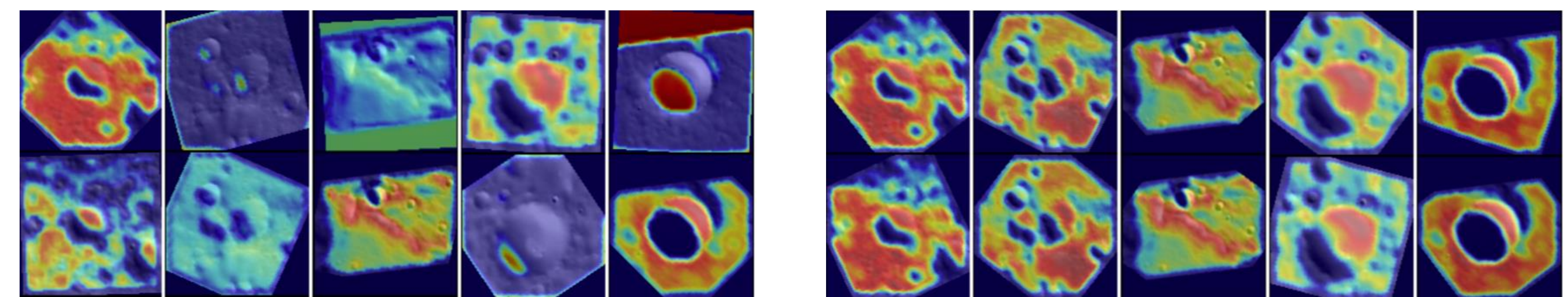
Multi-view Attention for Landmark Description: *Multi-view Attention Regularizations (MARs)*



Descriptors challenged by extreme viewing conditions and appearance change.



MARs aligns the **what** (channel) and **where** (spatial) of network attention focus.



Rotation Invariant CNN

MARs (Ours)

T. Chase Jr, K. Dantu, "MARs: Multi-view Attention Regularizations for Patch-based Feature Recognition of Space Terrain." *European Conference on Computer Vision (ECCV)*, 2024