Problem and Approach

- Multi-View Object Detection in RGB-D indoor table-top scenes.

Contributions:
- Resolve limitations of single-view detections such as occlusion or view-dependent ambiguities by integrating evidence from multiple views.
- Extract Shape Contexts on depth discontinuities to capture objects shape properties.
- Improve accuracy for texture-less objects.
- Unsupervised 3D object proposal generation that supports the detection.

Class-specific Detection

- Detectors applied sequentially for all object categories.
- For each class the score depends on number and concentration of votes.
- Scores across classes are normalized based on samples of the number of edge points.
- Hypotheses from detection provide a score distribution over the classes for each proposal.

Results

- We evaluated on the WRGB-D Scenes v1 and v2 Datasets [3].

Multi-Class Prediction

- Detectors applied sequentially for all object categories.
- For each class the score depends on number and concentration of votes.
- Hypotheses from detection provide a score distribution over the classes for each proposal.

Multi-View Detection

- Create tracks of object proposals based on their 3D centroid proximity in the scene.
- Update the class probabilities using Bayes rule every time a new proposal is added to a track.
- Scores across classes are normalized based on samples of the number of edge points.

Contributions:
- Resolve limitations of single-view detections such as occlusion or view-dependent ambiguities by integrating evidence from multiple views.
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Conclusions

- The 3D Class agnostic object proposals support the implicit shape model favorably by reducing the false positives.
- Integrating the evidence from multiple views can increase the performance considerably.