Technion – Israel Institute of Technology



Probabilistic Data Association for Semantic SLAM

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# Introduction

In the past..

Recently…

Now..

A picture containing shape

Description automatically generated

# Problem Formulation and Main Contribution

Graphical user interface

Description automatically generated

Graphical user interface, diagram

Description automatically generated

# Method

To solve the data association in the back end, a two-step optimization process was devised, one where the data association computed by marginalization.

## Step1 – Initialize state

A picture containing company name

Description automatically generated



Text, letter

Description automatically generated

Chart, scatter chart

Description automatically generated

Diagram

Description automatically generated

## Step2.a - Cluster objects

Text, letter

Description automatically generatedText

Description automatically generated

Chart, histogram

Description automatically generated

Diagram

Description automatically generated

Diagram

Description automatically generated

Chart, histogram

Description automatically generated Chart, histogram

Description automatically generated

Chart, radar chart

Description automatically generated

## Step2.b - Compute posterior class distribution of clusters





Diagram

Description automatically generated

Diagram, venn diagram

Description automatically generated

Chart, line chart

Description automatically generated

## Step3 – Solve for camera poses and object locations given association

Diagram

Description automatically generated

## Step 4 – Remove false positives

Chart

Description automatically generated with low confidence

# Experiment

A screenshot of a computer

Description automatically generated with low confidence

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# Conclusion