

# Real-time Tracking for Sensor Networks via Semi-Definite Programming and Gradient Method

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# [ Abstract ]

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- Tracking moving objects is useful in many fields. It has wide scientific, commercial applications.
- Sometimes, GPS is not applicable.
- We want to have instantaneous, accurate, and robust tracking of the moving objects.
- Occasionally, we want to find out the property of the movement of the objects.

# [ Approaches ]

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- SDP (Semi-definite Programming) can be used to locate sensors with high accuracy.
- In this setting, we usually have some sensors and a few anchors. We are given partial distance information between sensors as well as between sensors and anchors

# [ Advantages ]

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- Accurate: It can locate all the “localizable” sensors.
- Identifier of accuracy

# [ Tracking Procedure ]

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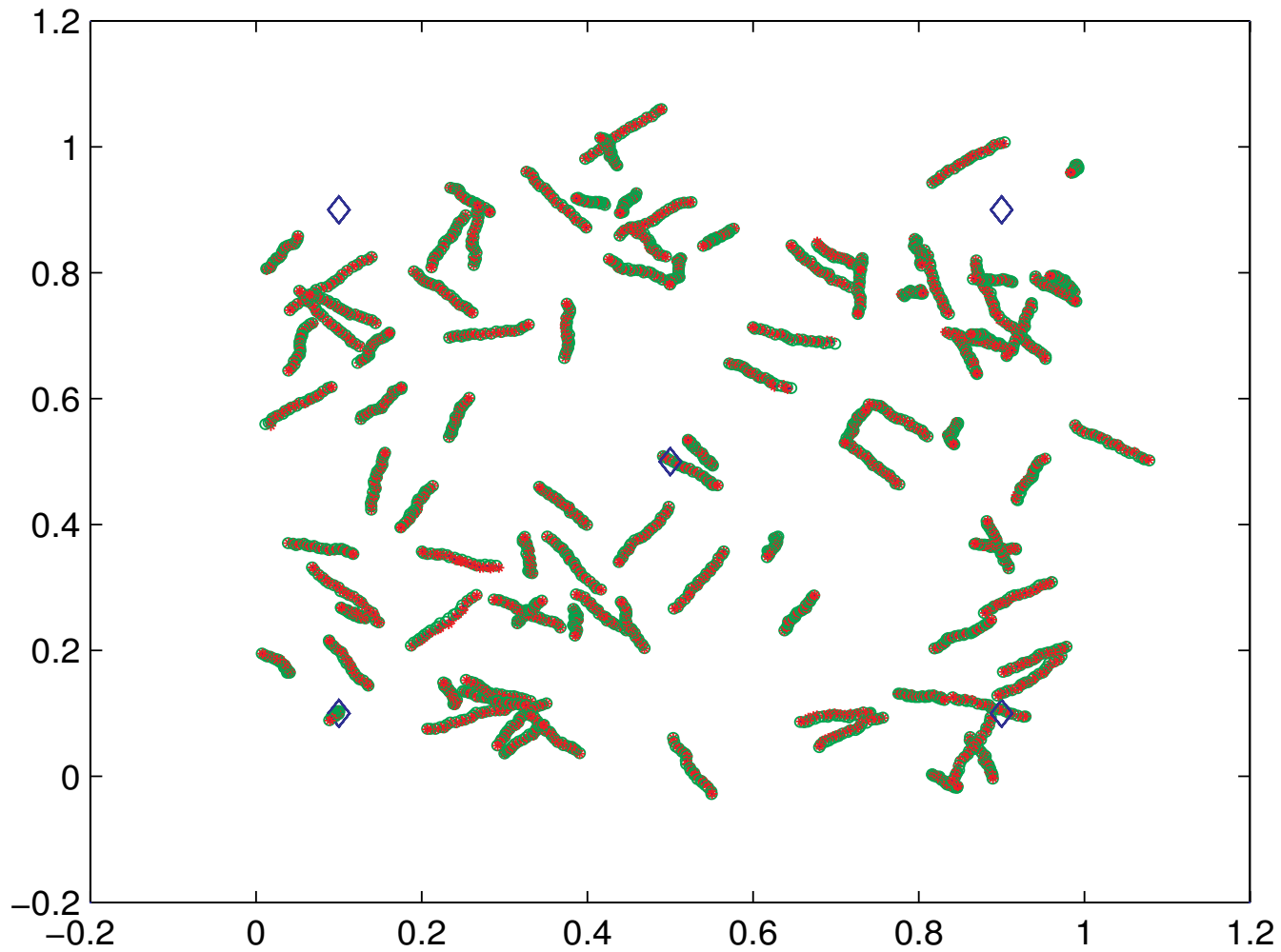
- Updating the location by gradient methods.
- The gradient is very efficient and robust.

# [ Making Predictions for future movements ]

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- Make future predictions by solving ODEs: minimize errors to determine coefficients.

# Result





Thank you