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Simulating Crowds in Real-Time with Agent-Based Modelling and a Particle Filter

Dr. Kevin Minors
GISRUK 2019

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Data Analytics*

Motivation



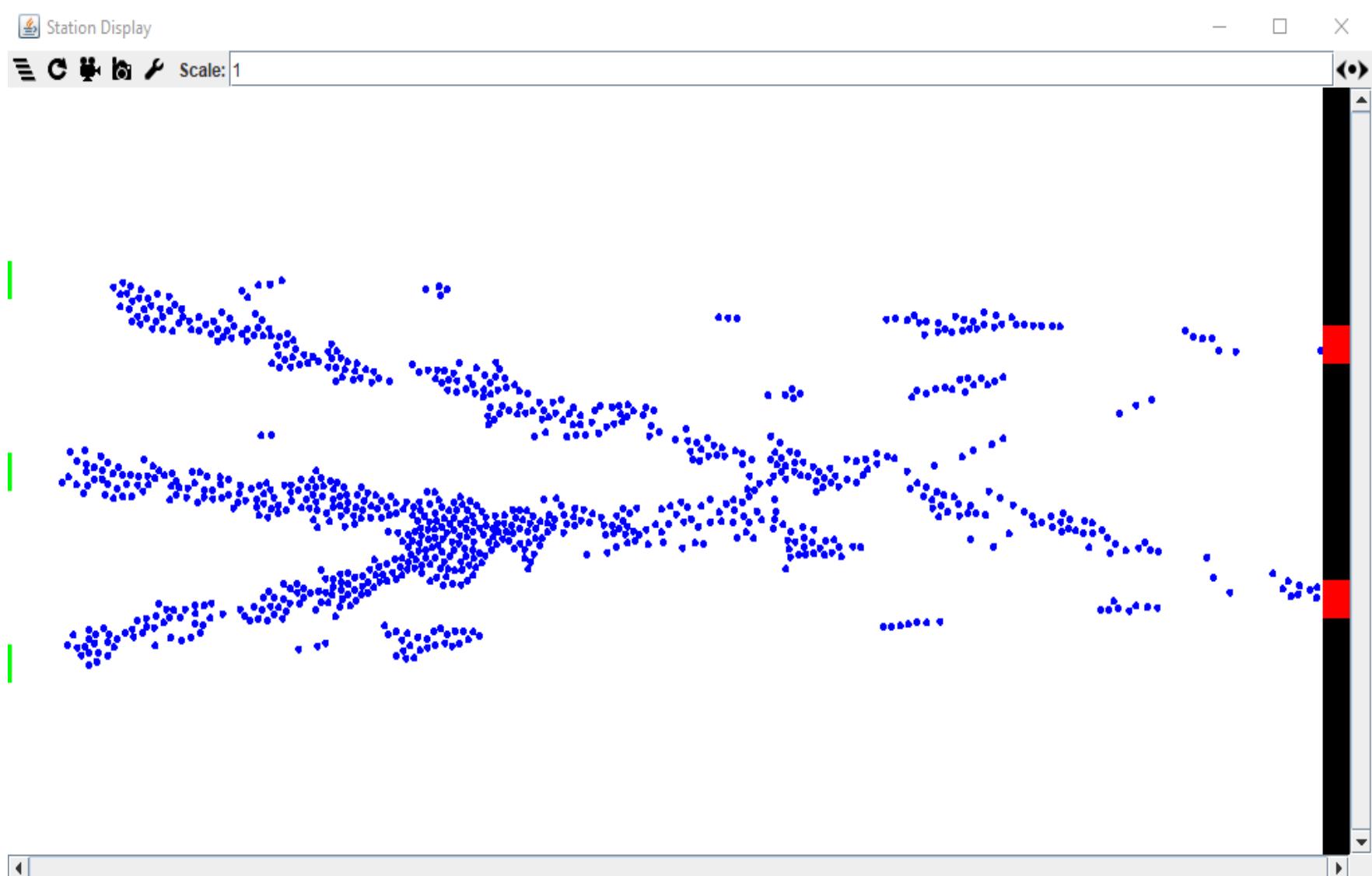
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Motivation



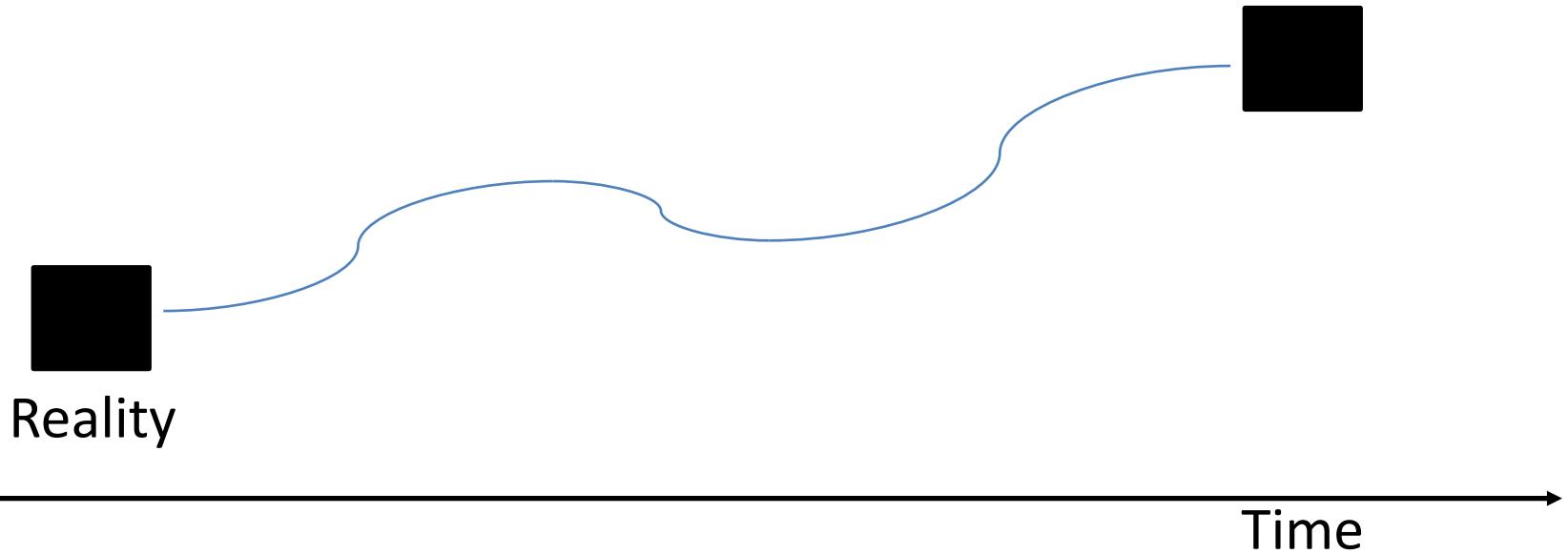
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The Problem



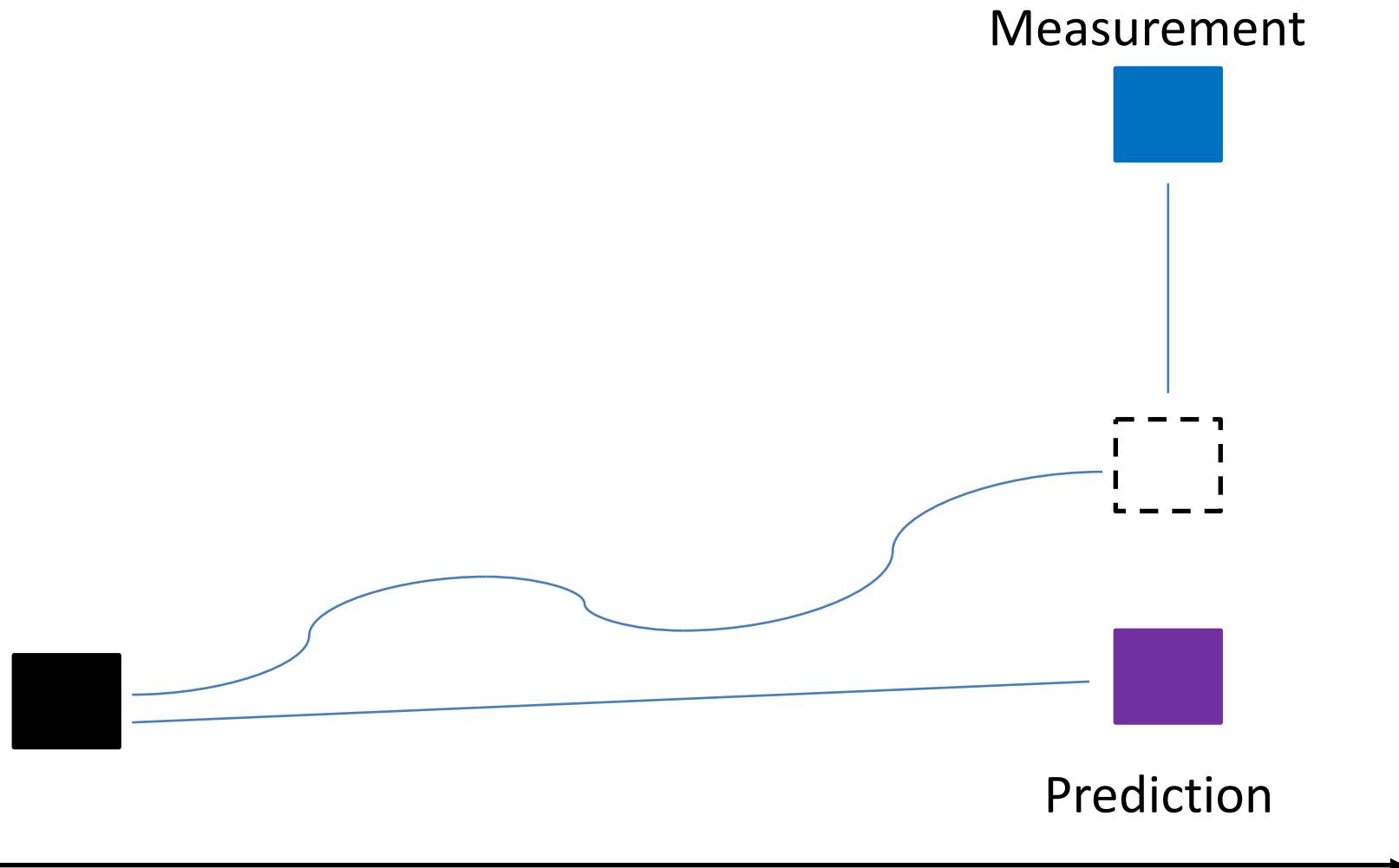
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The Problem



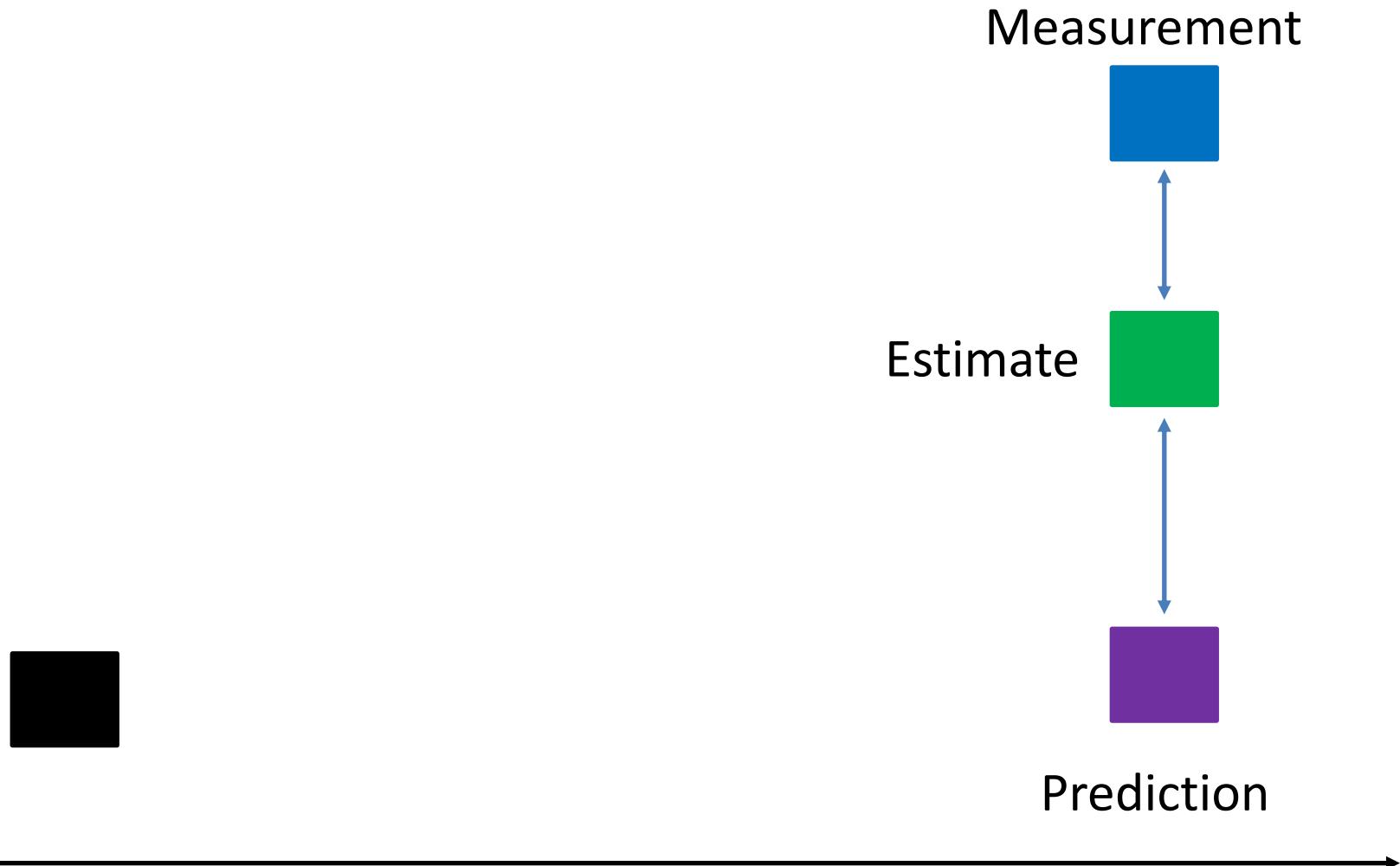
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The Problem



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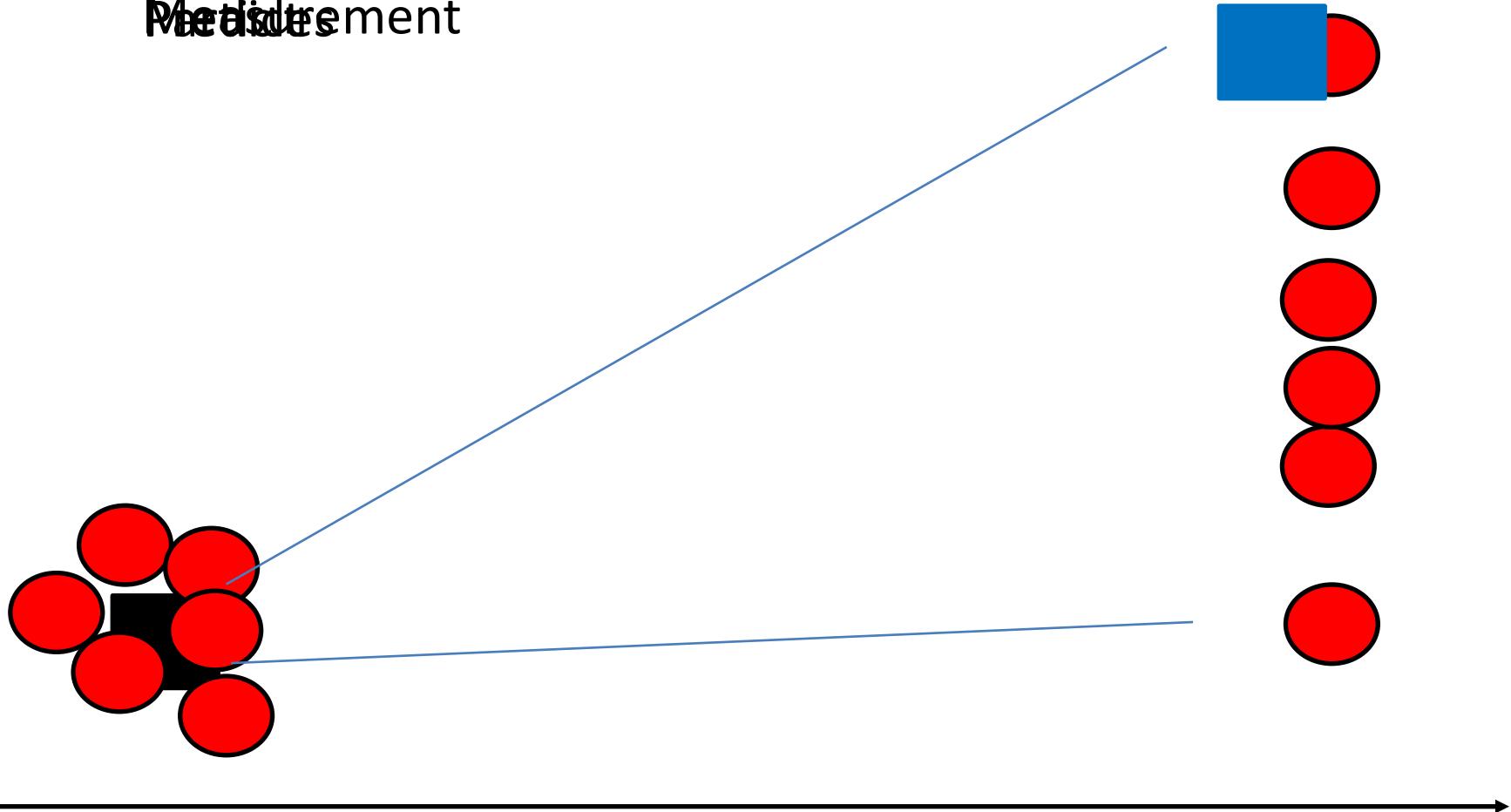


A Solution – Particle Filter



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Measurement

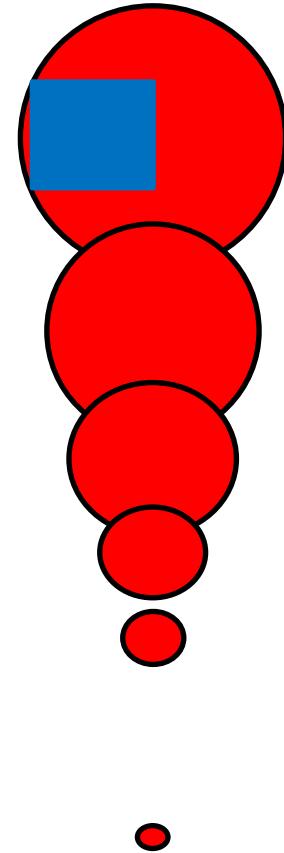
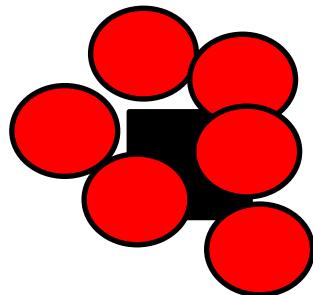


A Solution – Particle Filter



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Reweighting

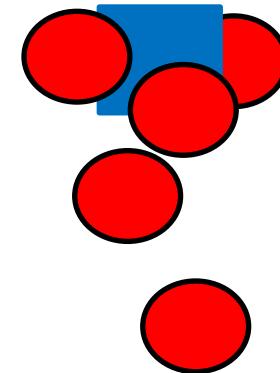
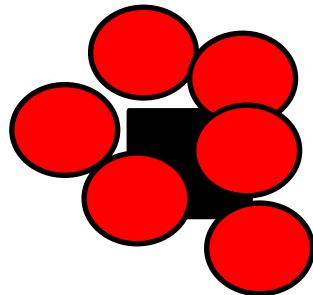


A Solution – Particle Filter



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Resample

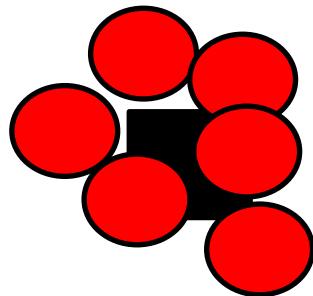


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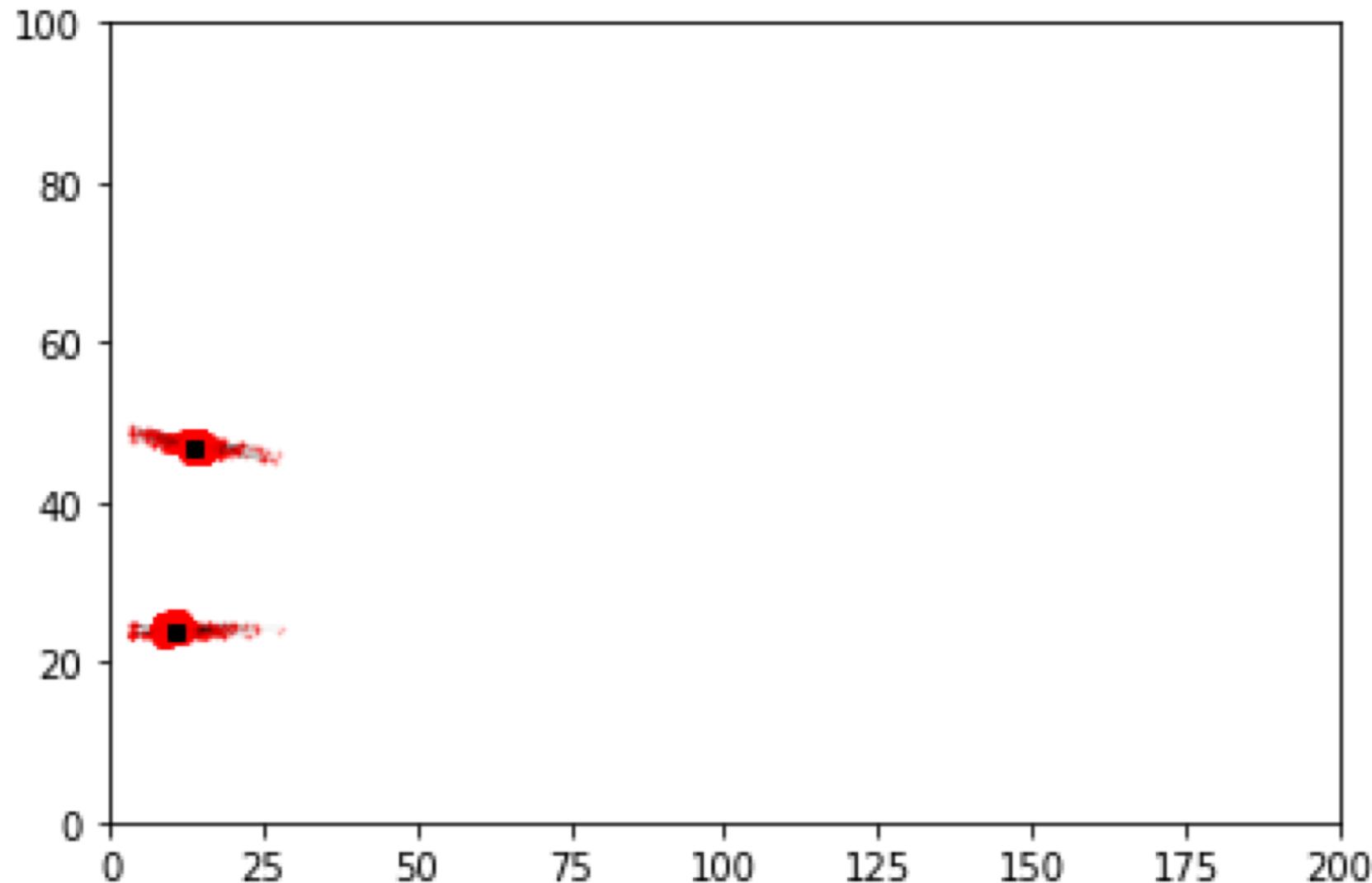
Estimate



Example



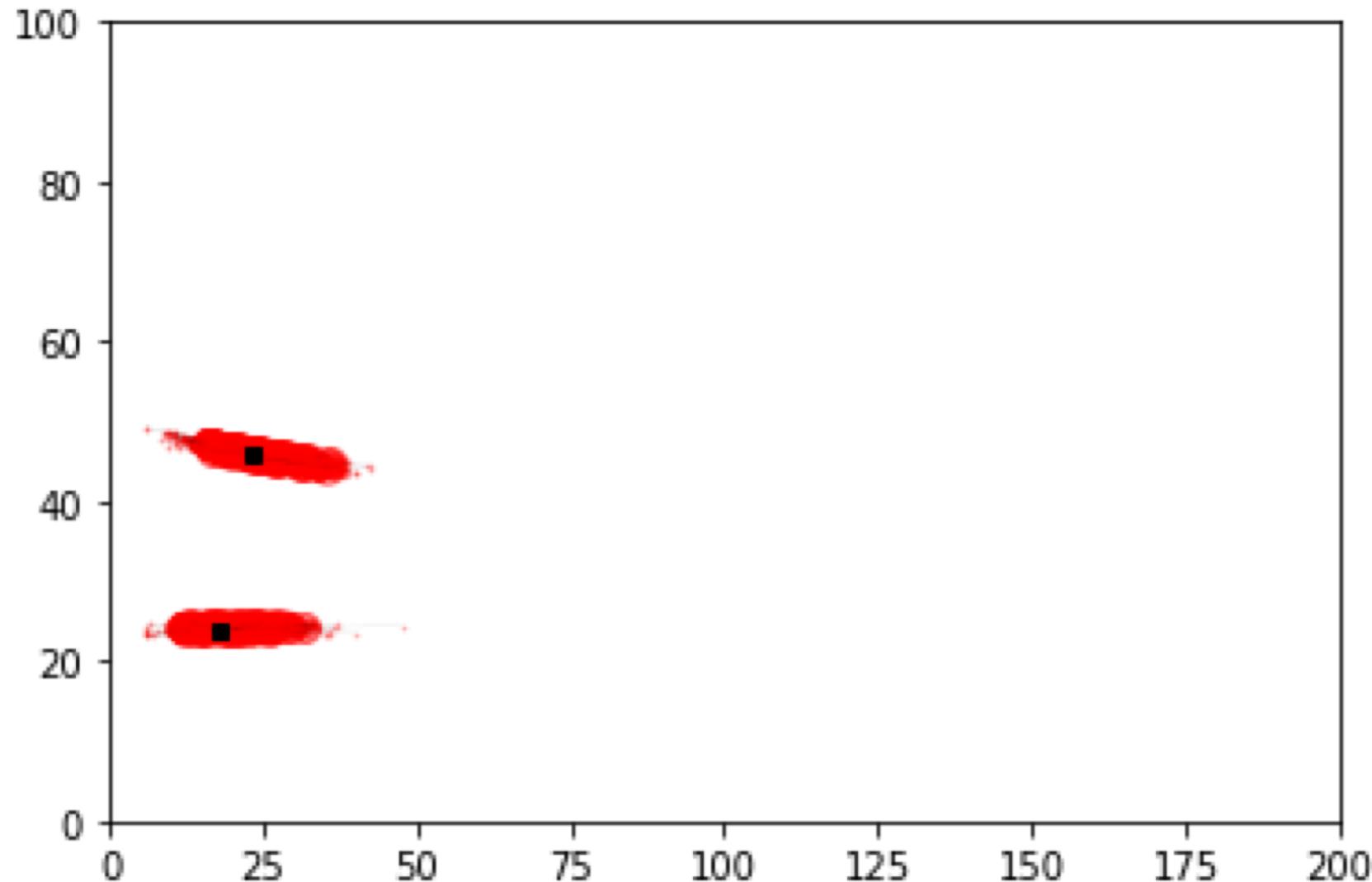
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Example



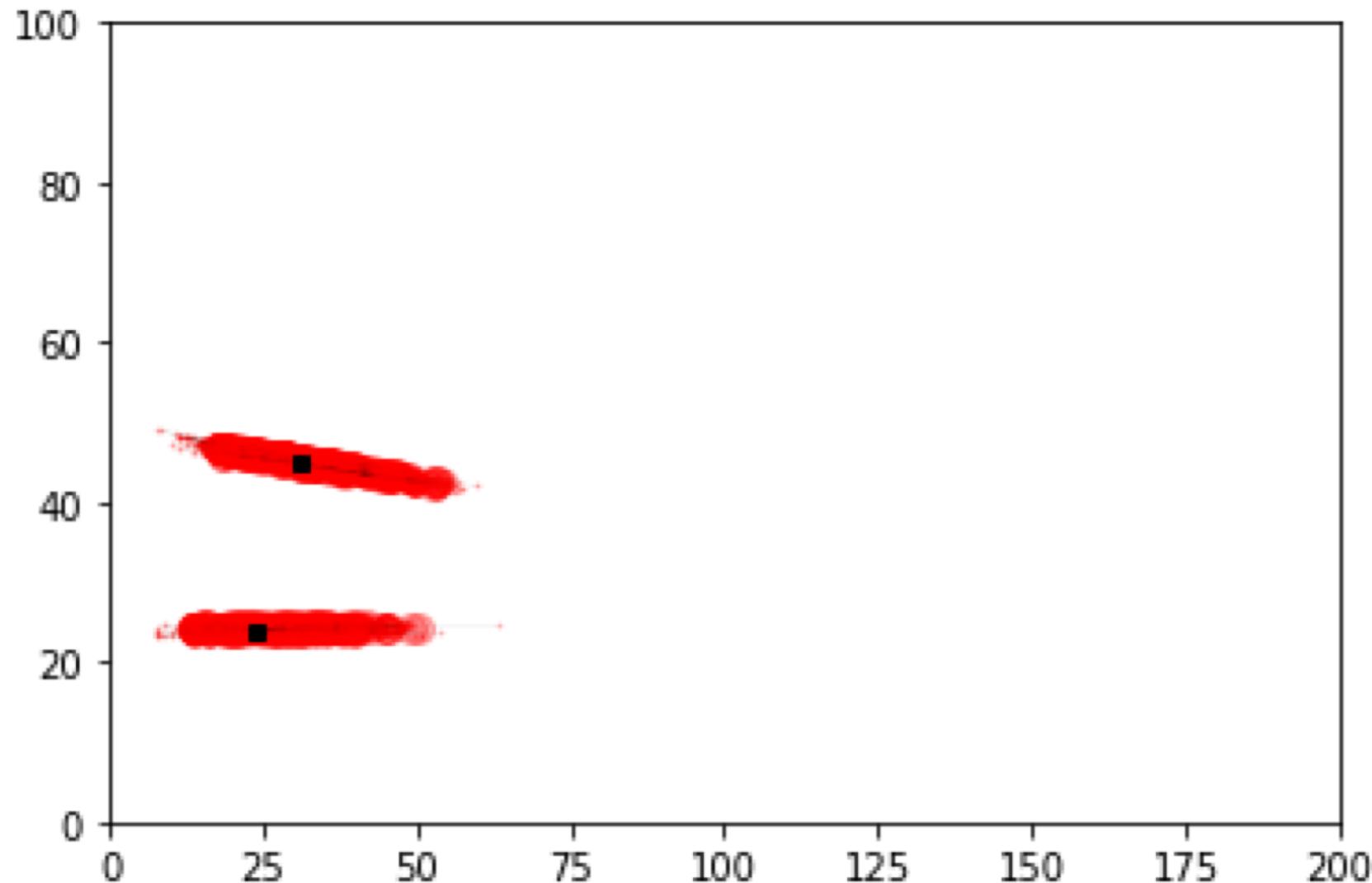
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Example



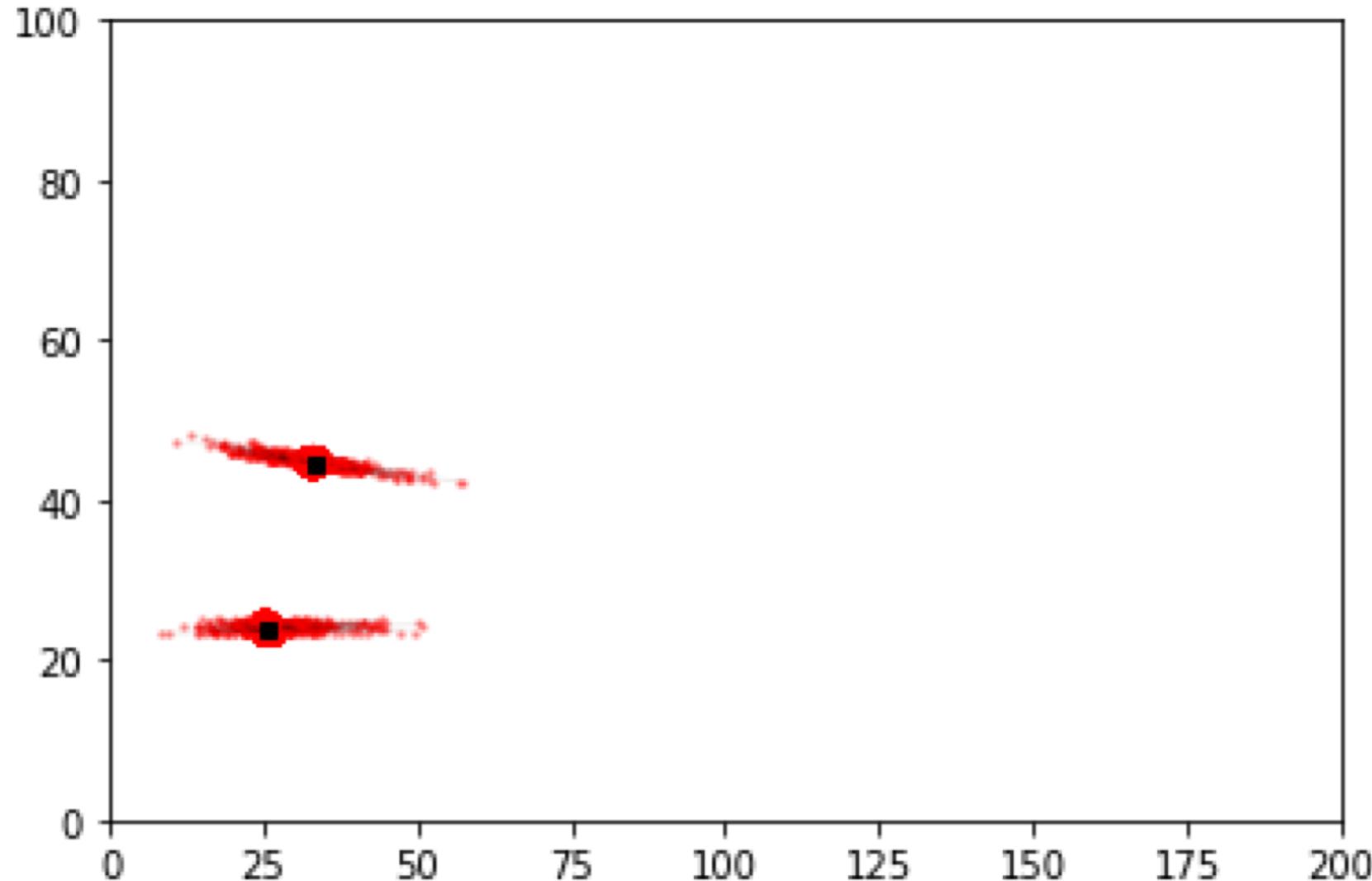
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Example



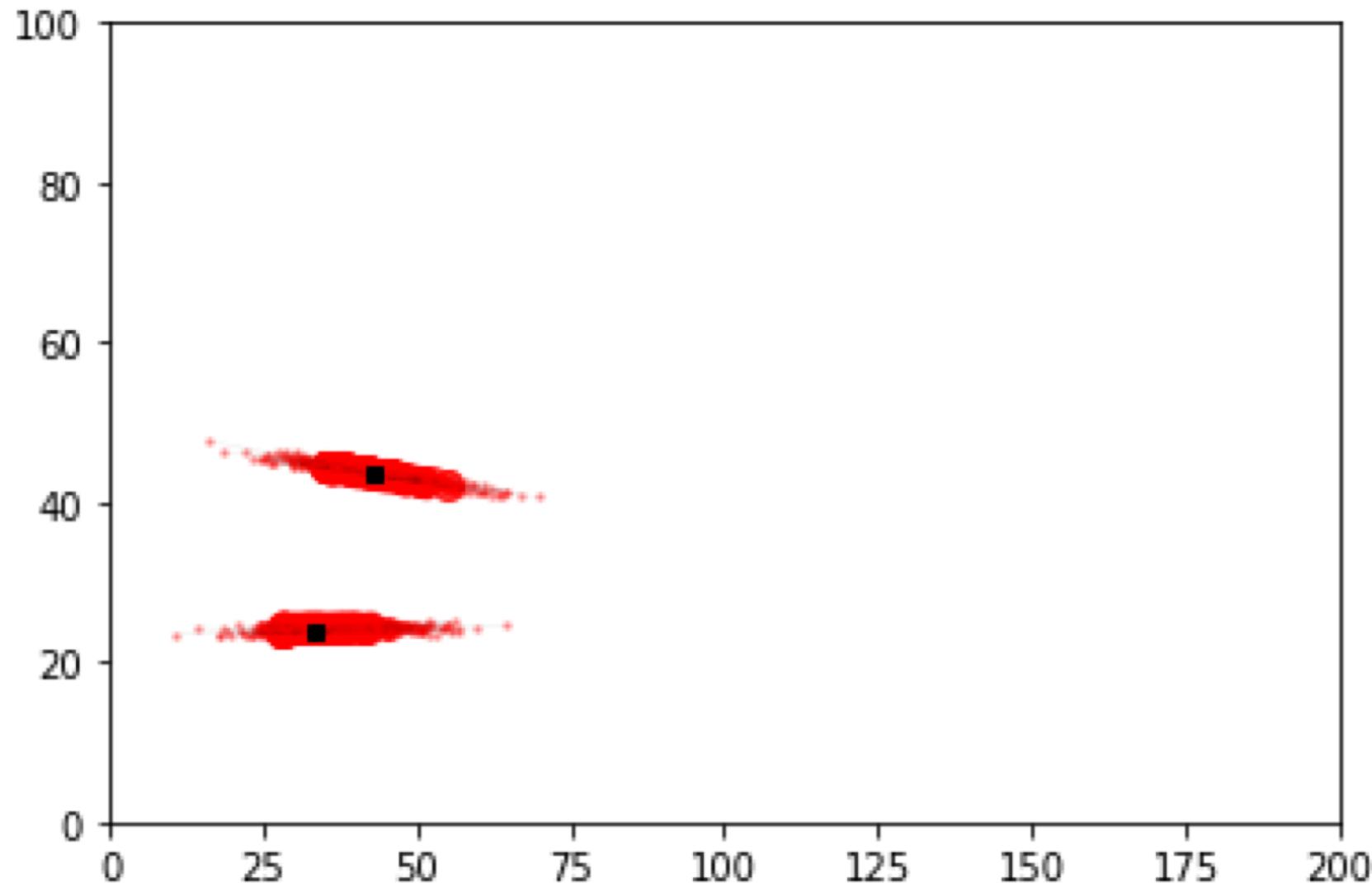
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Example



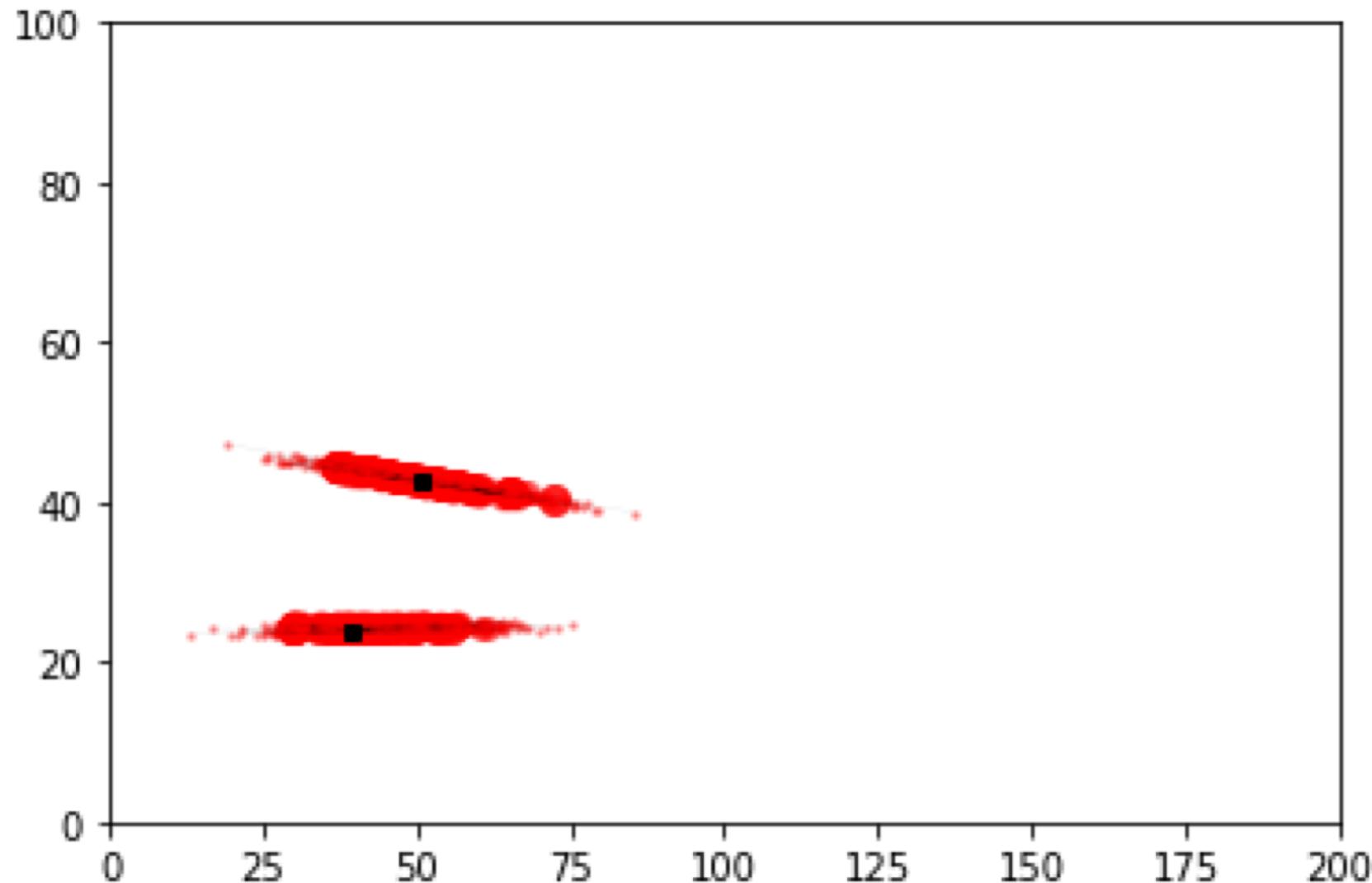
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Example



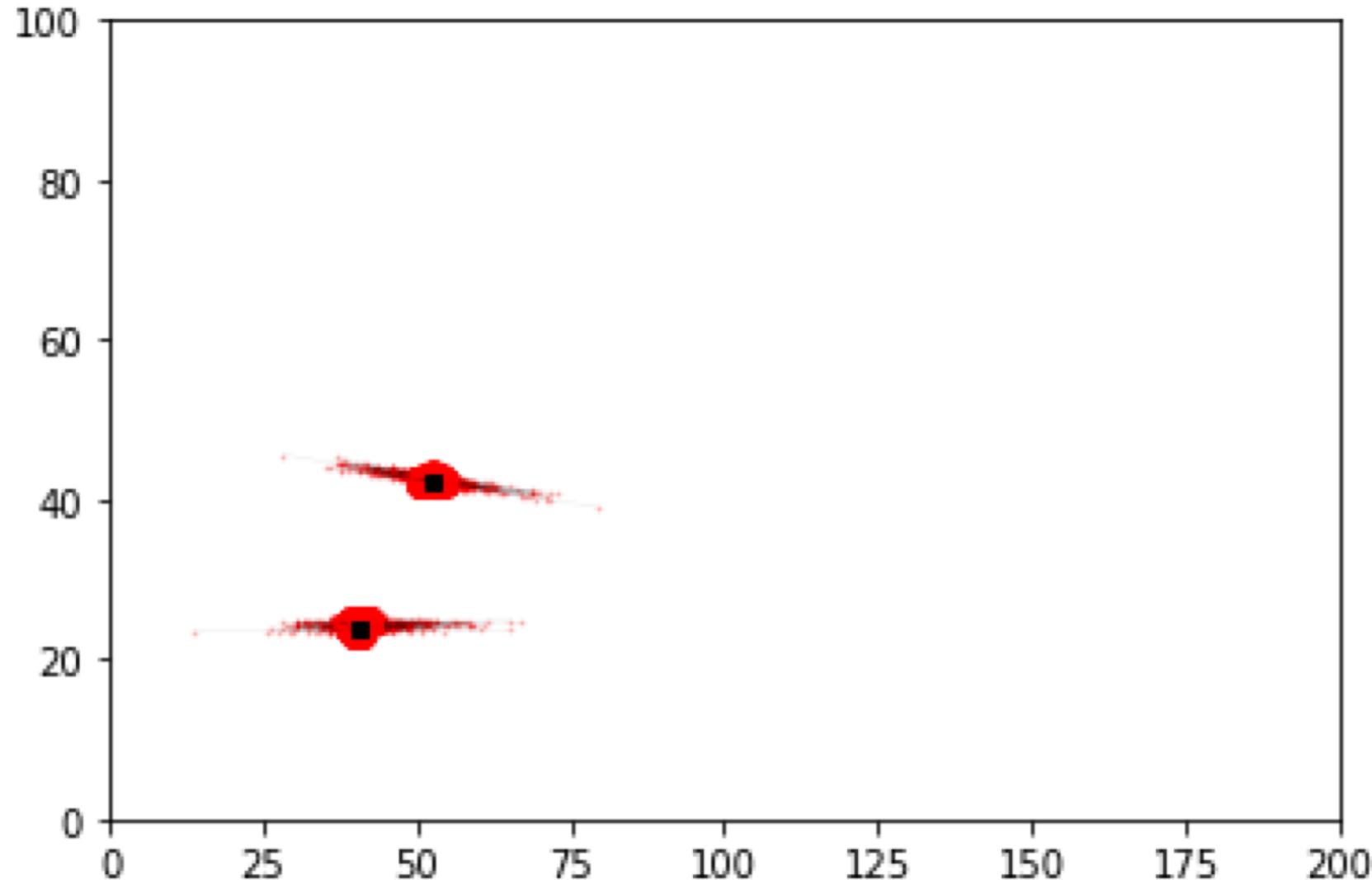
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Example



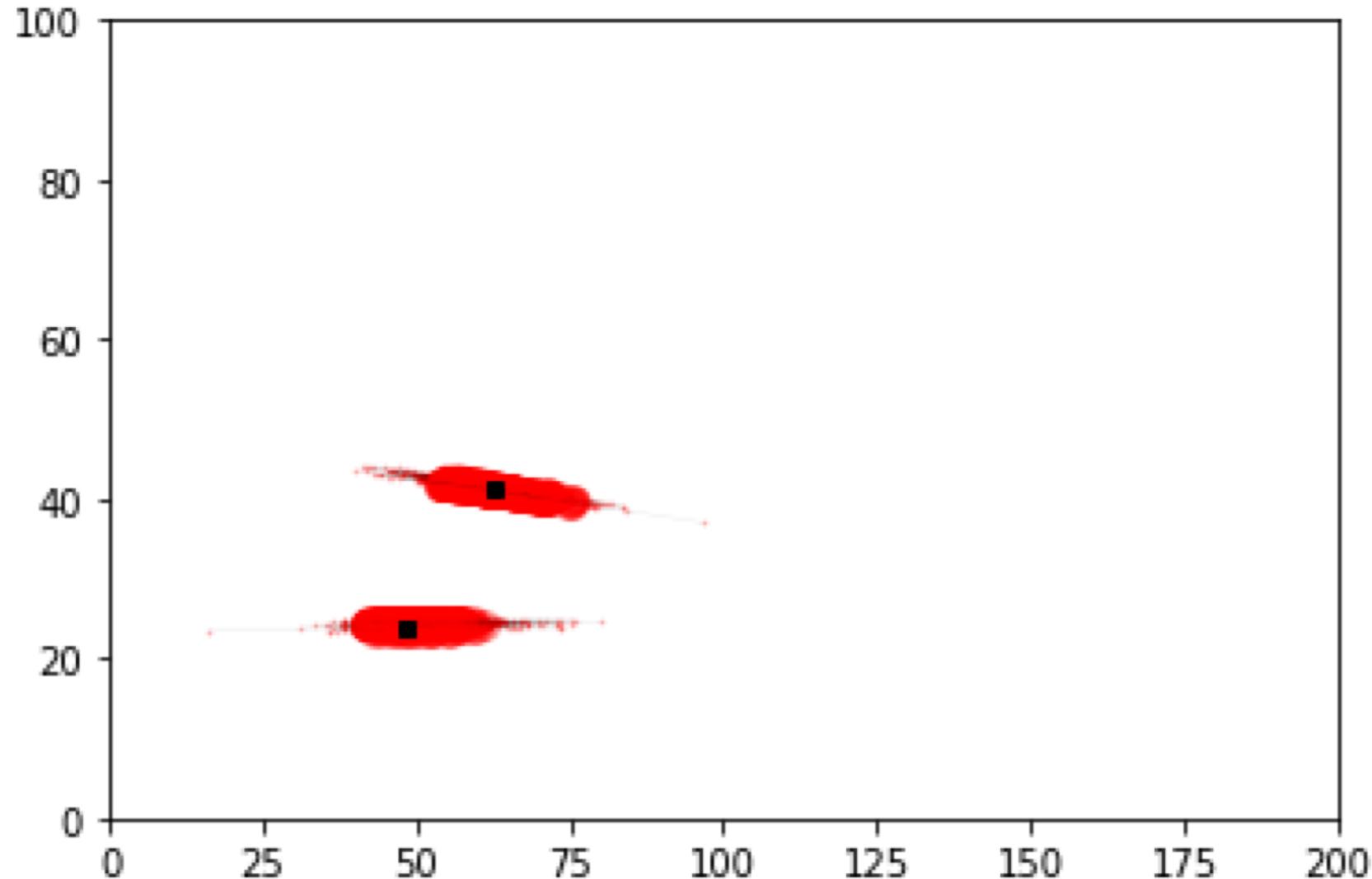
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Example



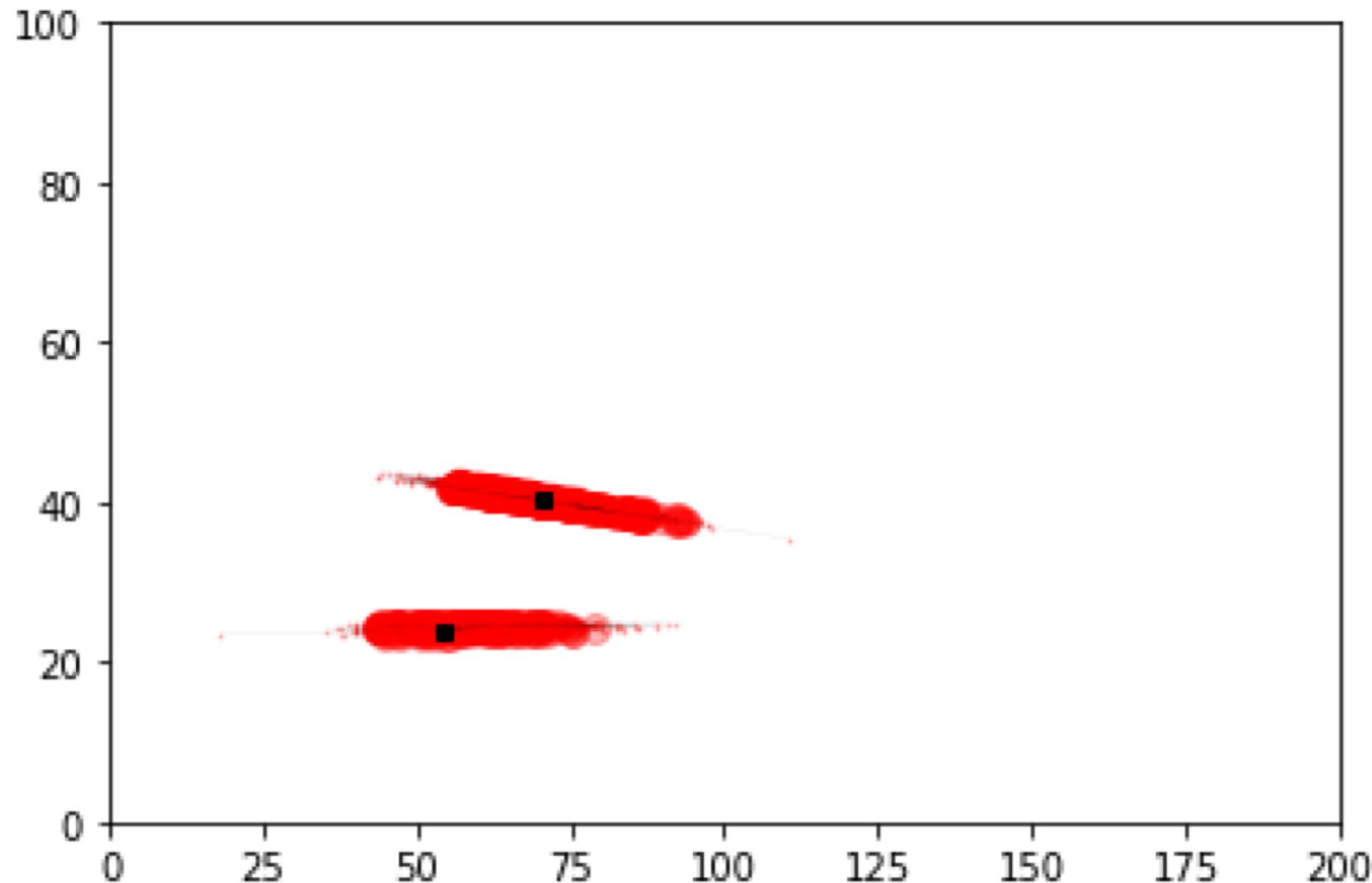
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Example



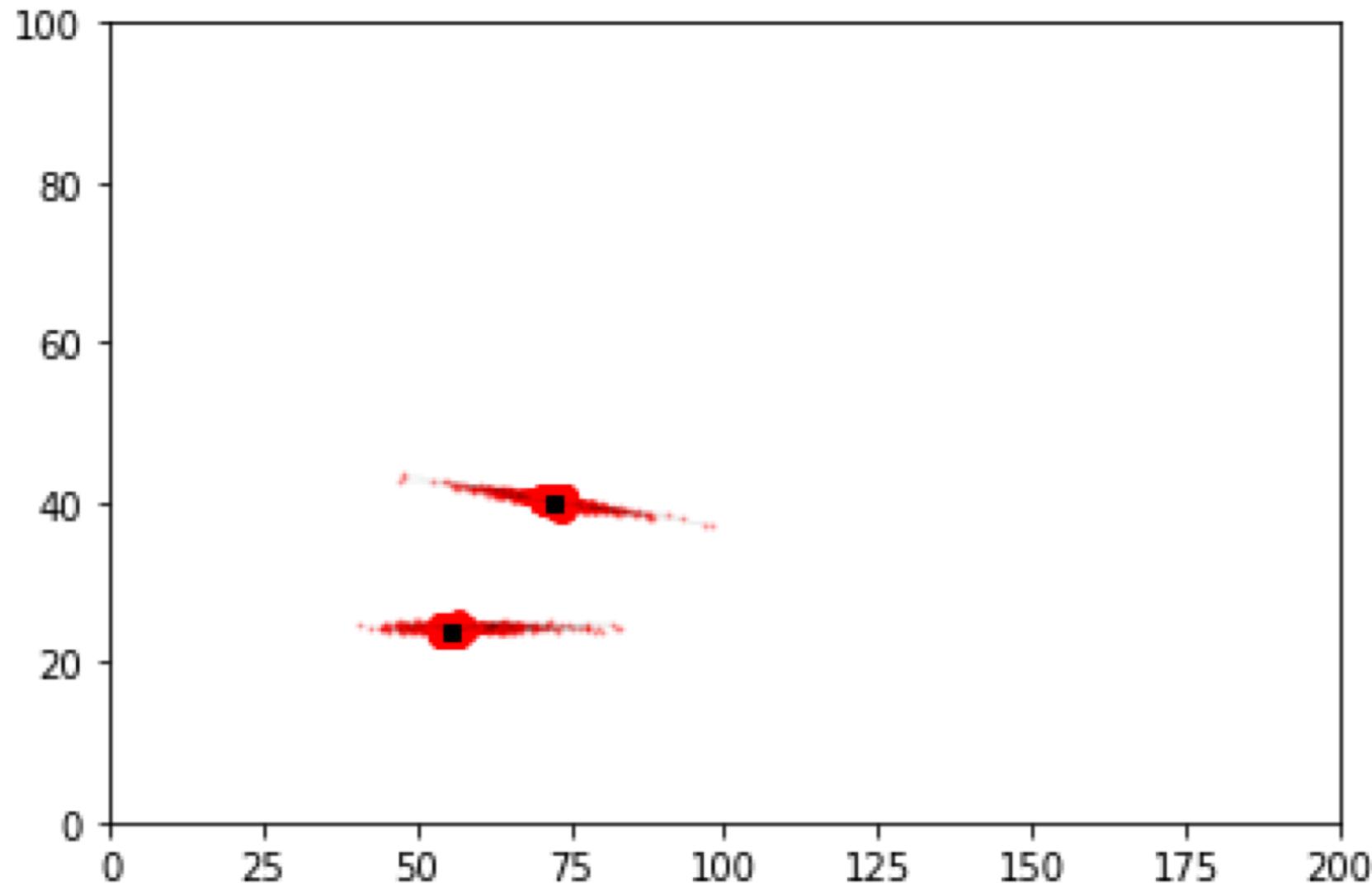
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Example



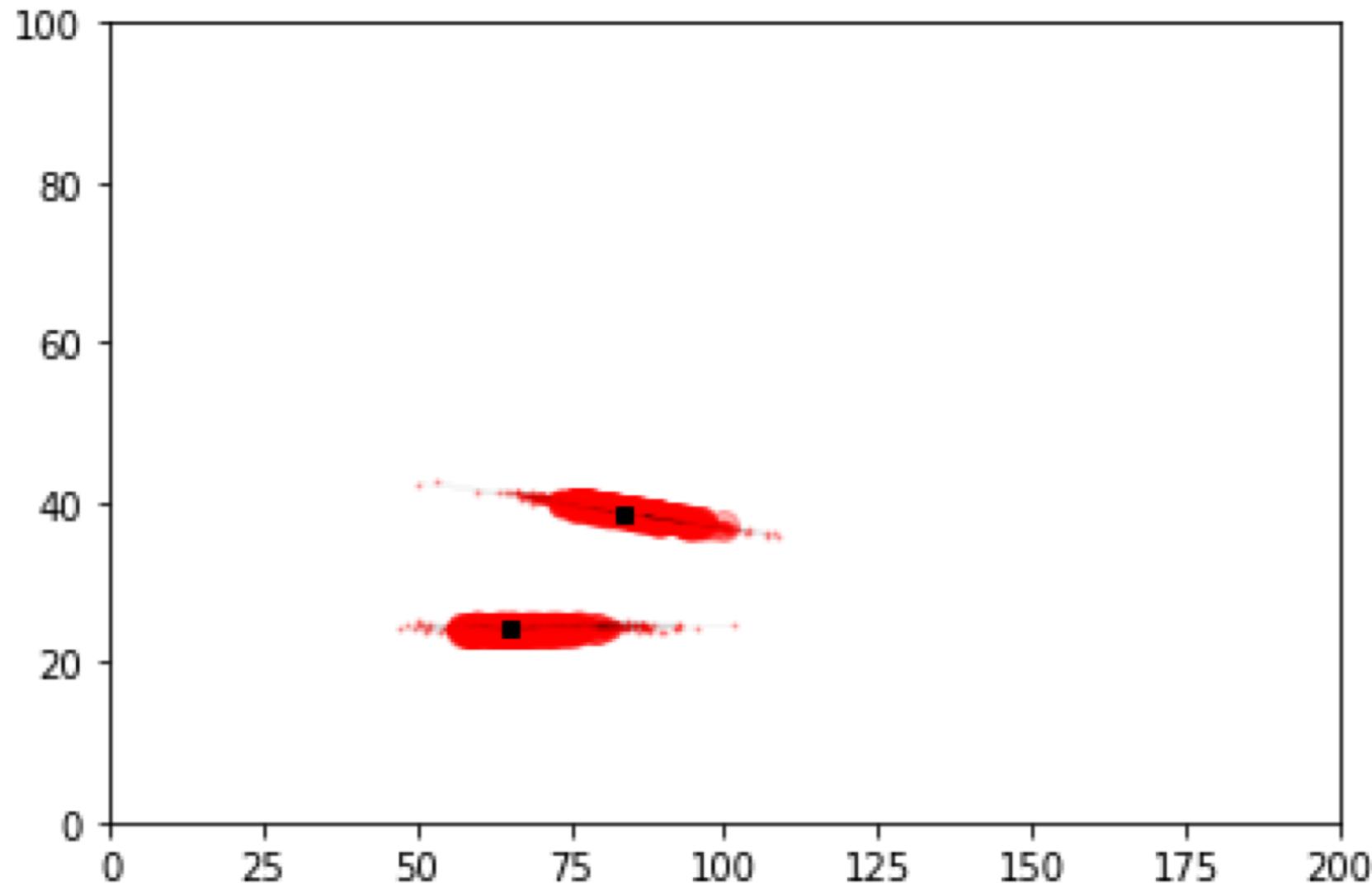
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Example



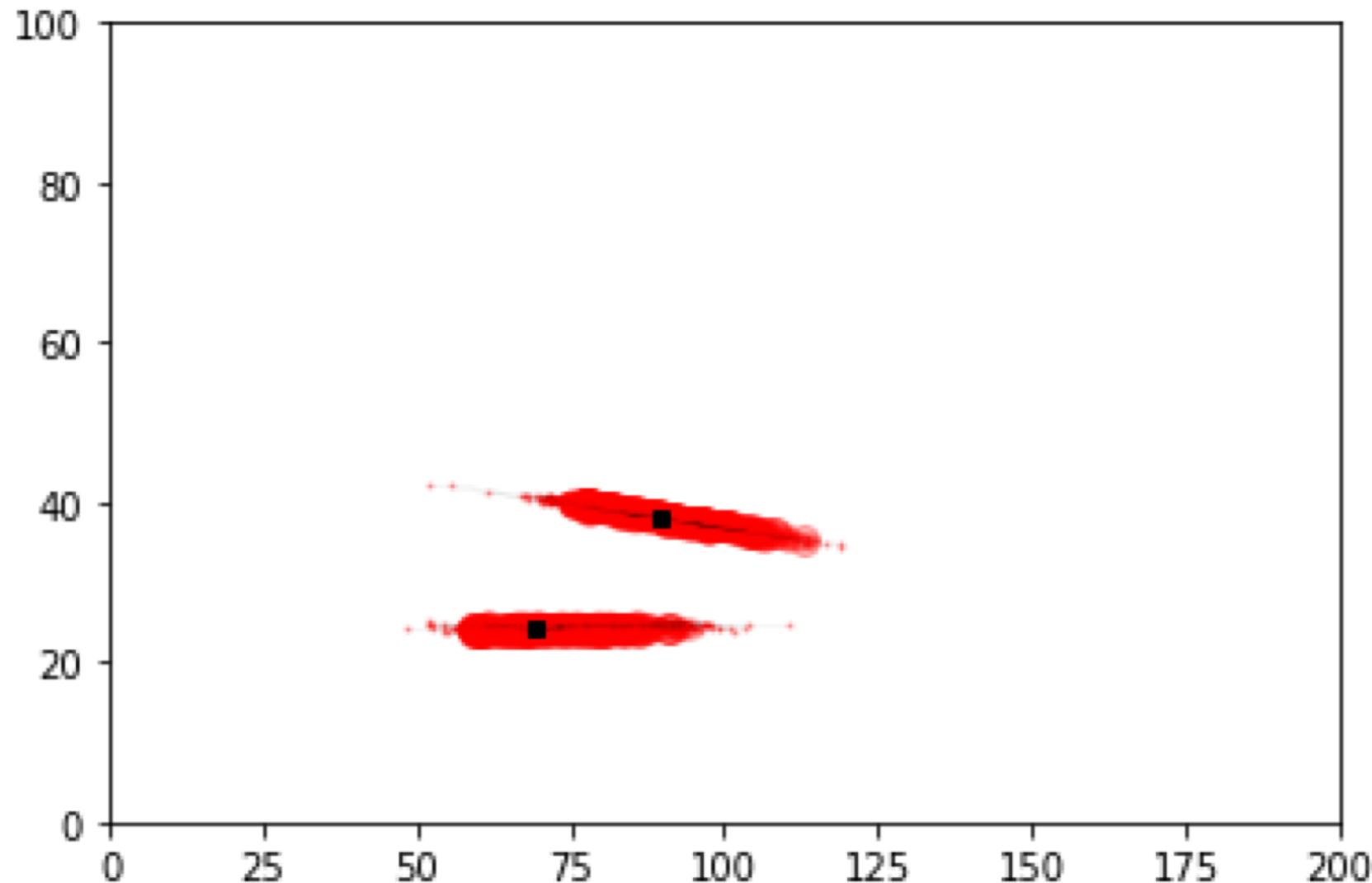
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Example



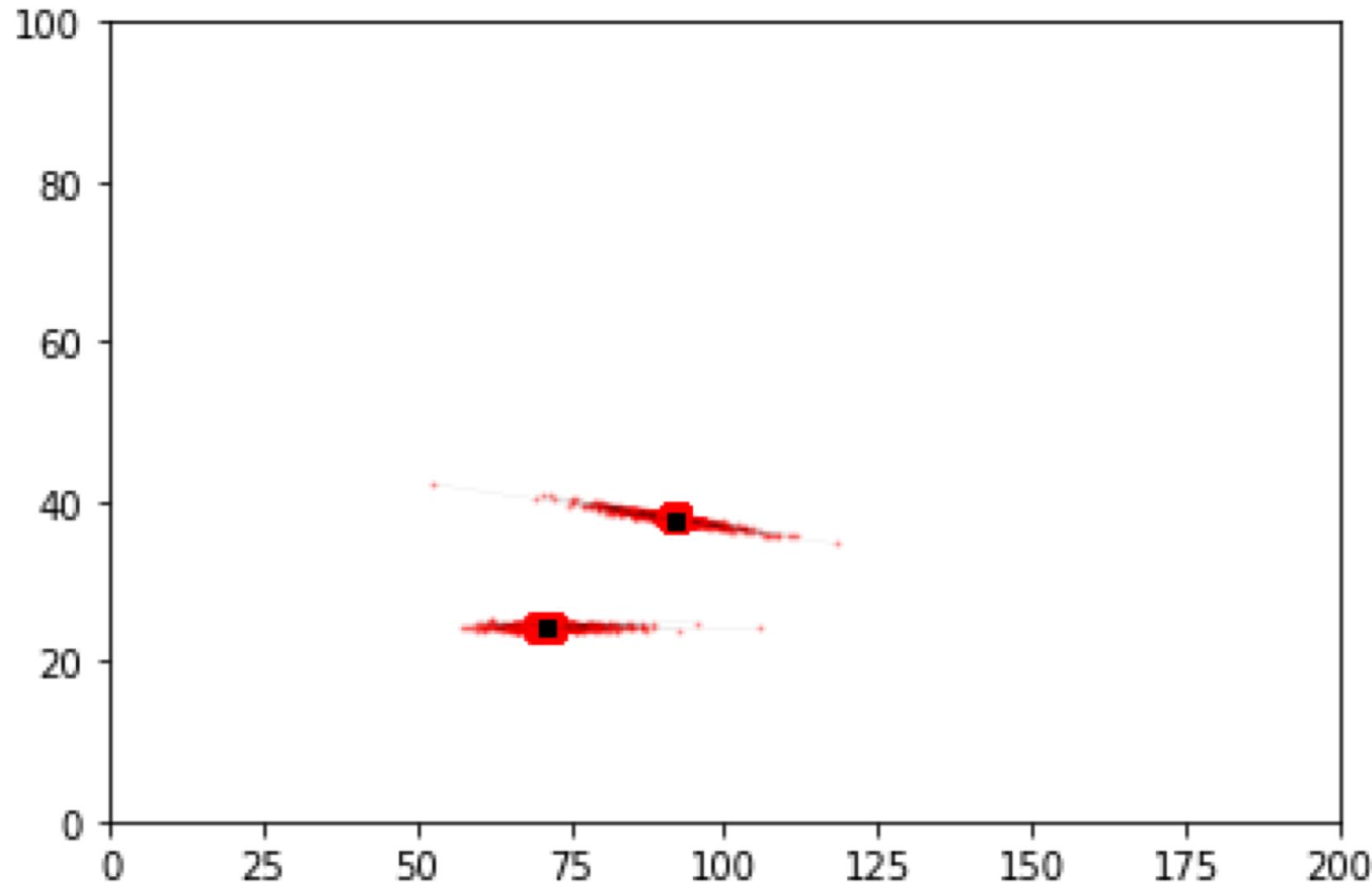
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Example



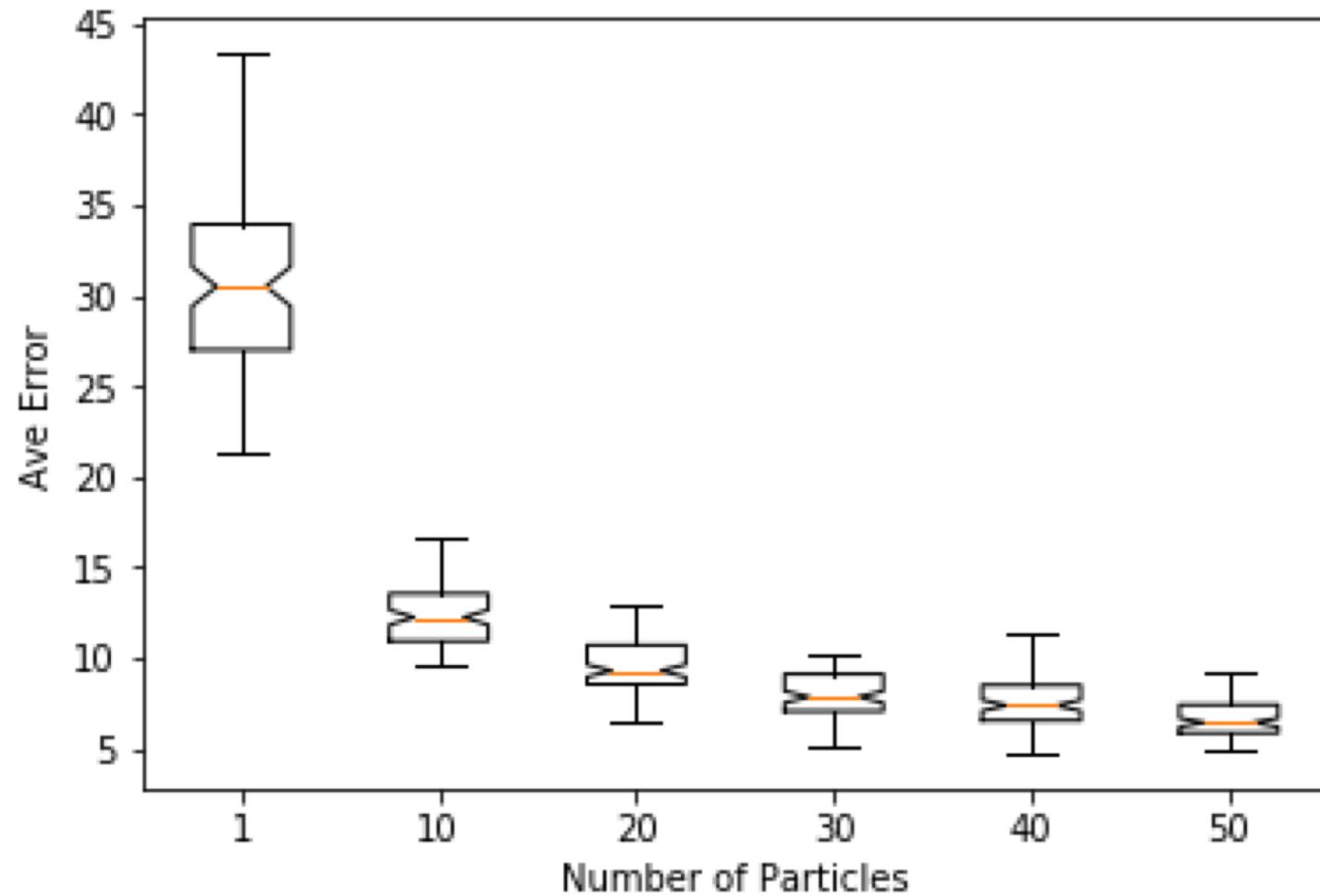
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Results



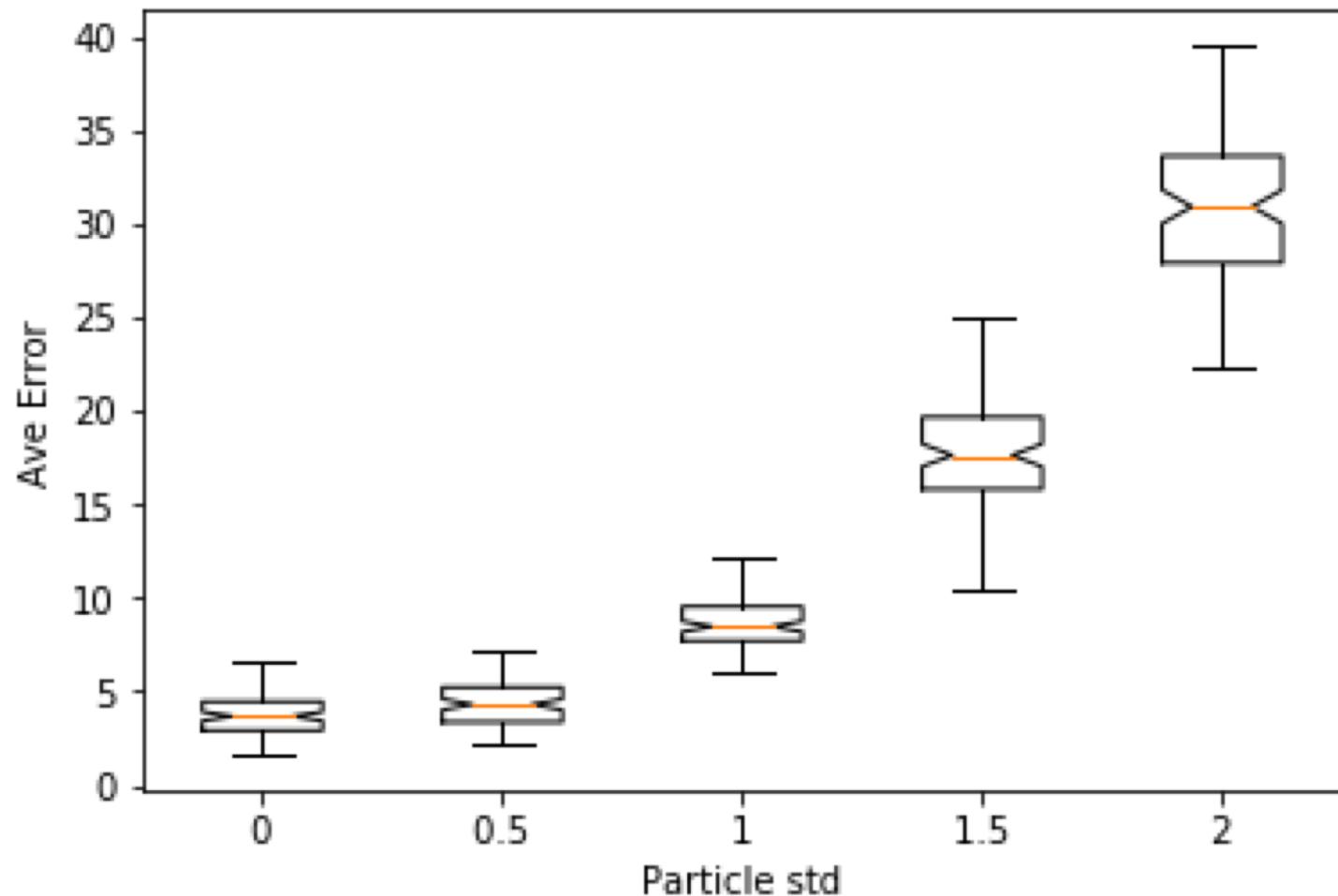
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Results



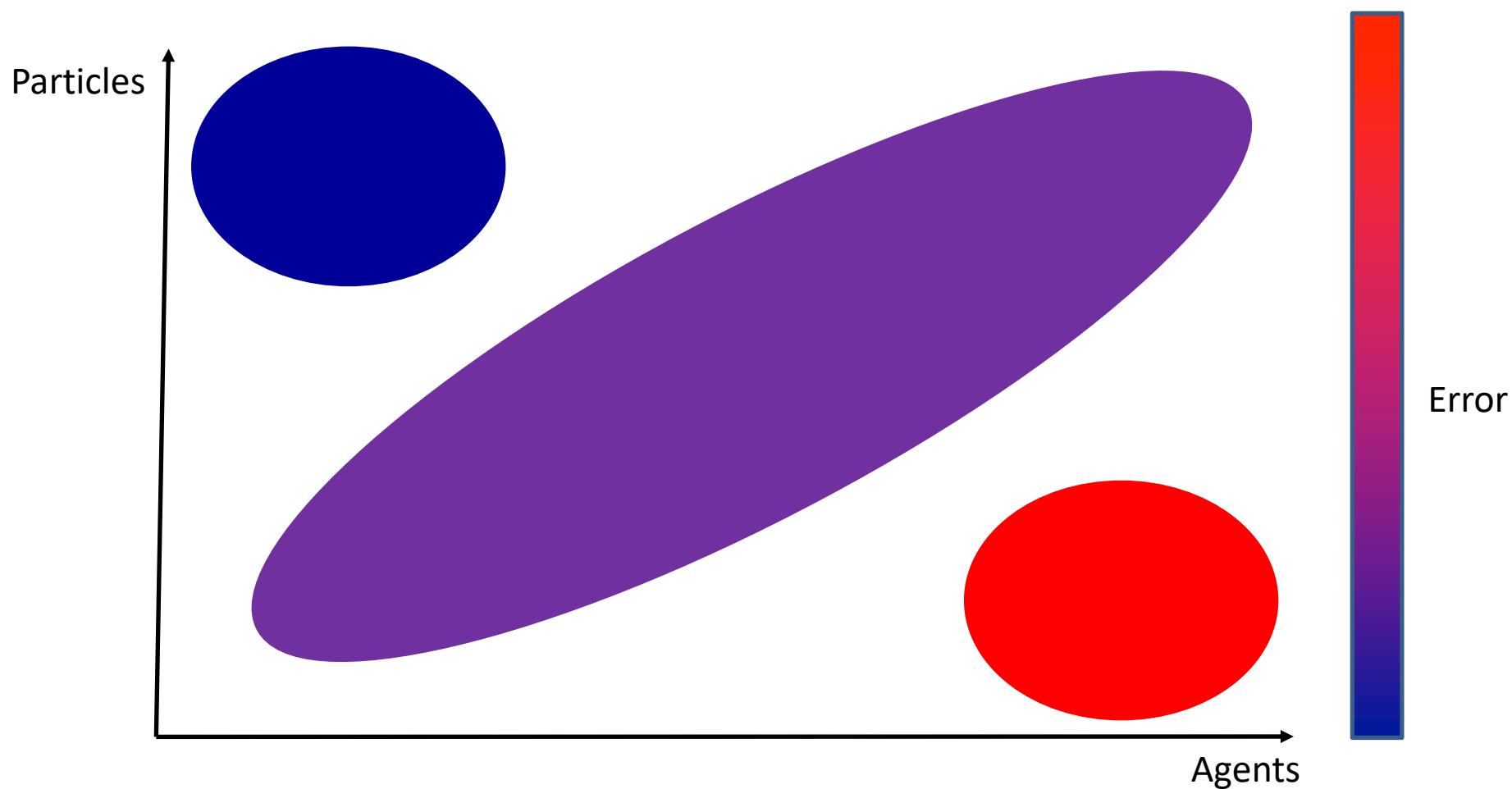
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Results



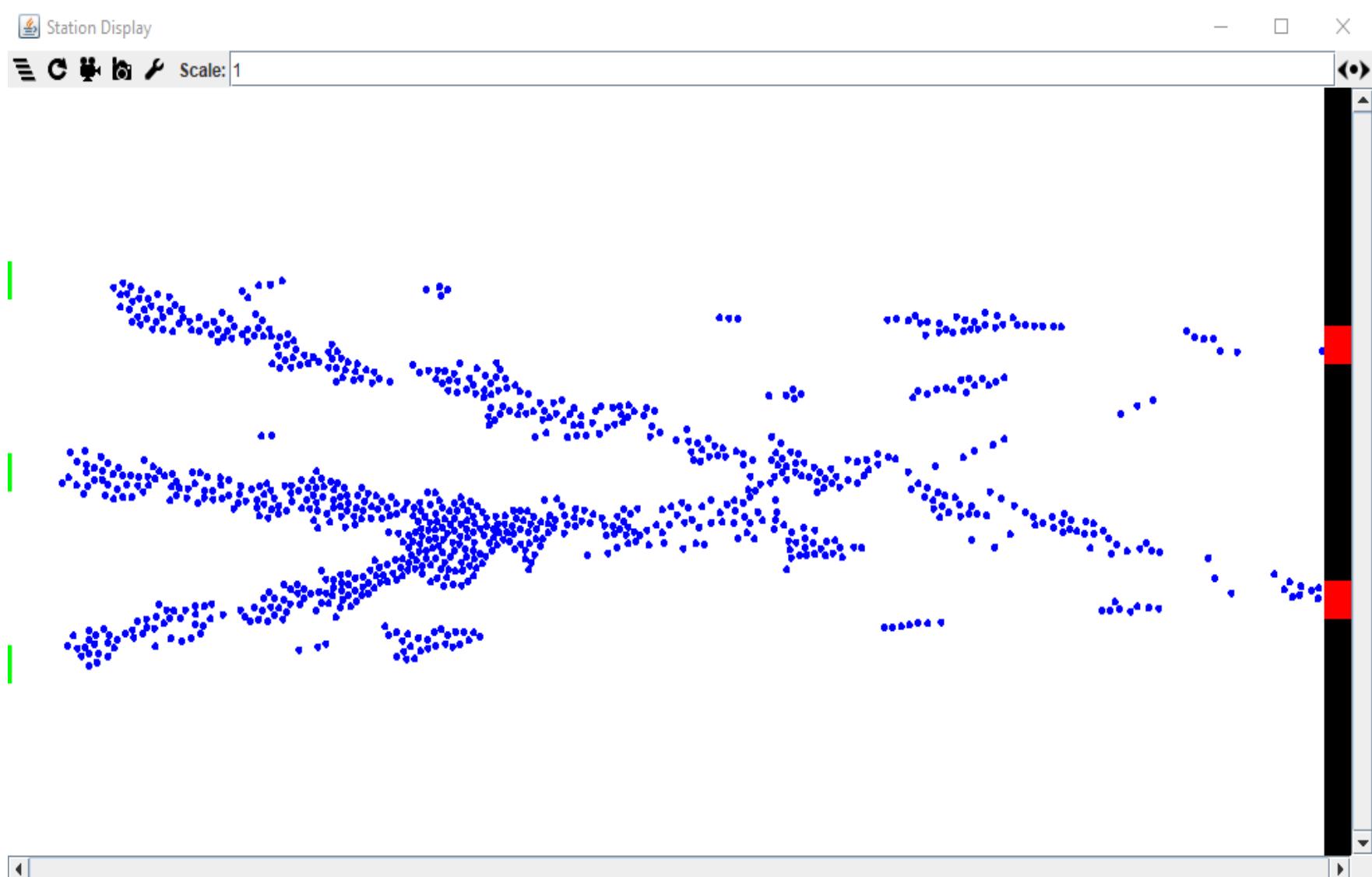
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Summary



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