Kiko Simulation and Analytics

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Contents

0.1 Simulation

Aim of the simulation is to generate movement data (paths) across different target points, visualize and use the same data for analysis.

0.1.1 Simple Problem Formulation

1. Formation of a N*N matrix
2. Many targets are there inside the matrix
3. An agent is Moving inside the matrix based on markov principle
4. Agent always choose shortest path to reach its target

0.1.2 Model Building using Markov process

1. Markov chain building based on the movement

0.1.3 Data generation from model for analytics

1. Data collection from simulation and storing into database

0.1.4 Activity Heatmap Generation

1. Heatmap to understand the Activity

0.1.5 Load all the work to AWS

1. An instance of the Simulation to AWS for demonstration

0.2 Analytics

1. Performing some analysis of simulated data

0.2.1 Interpretation of data

1. Understanding the simulated data

0.2.2 Statistical Analysis

Basic statistical analysis

Analysis of distribution

1. Distribution of hittting multiple targets

Analysis of Standard Deviation

1. Standard Deviation

Analysis of variance

1. Variance

Analysis of Mean

1. Mean

Boxplot for Comparison of Simulations

1. Boxplot

Correlation Analysis between Simulations

1. Correlation

Other Insights

1. Other Inferences

0.3 PRISM (Probability Model Checks)

1. Probability based model Checking

0.4 Documentation of the Work

1. Inclusion of UML Diagram