**Neo-**

Cleaning Robot Proposal

Digital Tools for Data Encoding and Machine Learning

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The following project poses an innovative method that connects reinforcement learning and shallow learning with the aim of preventing accidents in building cleaning processes.

Window-and-façade cleaning has remained the same for centuries, being one of the most dangerous activities in the building industry. This project proposes the use of a cleaning robot as a safety upgrade, while providing the user with a prediction of the robot cleaning time in relation to the building’s windows features.

The proposed workflow consists in training a DQN model, data extrapolation and synthetic-data creation, data exploration, training and testing of shallow-learning models, testing and training of ANN regression models and, finally, understanding the best options to predict the robot’s cleaning time.

The resulting model model would allow the user or client to get a reliable prediction of the cleaning process in relation to the building.This information could be integrated into AEC schedule and help predict from the very beginning not only the cleaning times for a building but the numbers of robots that will be need and the related expenses.

Reference DQN.-https://github.com/NariddhKhean/Grasshopper\_DQN