NAO Planning Competition 2024

J&G Nao Crew

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Problem Statement: Choreography Requirements

Our goal is to create a choreography for the NAO robot that meet specific criteria. The choreography have to include some mandatory positions, ensuring adherence to predefined movements. Additionally, we want to introduce creative freedom by incorporating alternative positions.

Mandatory Positions

These positions are required to achieve the final goal. They can be executed in any order.

Intermediate Positions

To make the choreography more engaging, we incorporate additional positions.

Algorithm:

Iterative deepening search

We utilize the iterative deepening search algorithm to find a suitable path between the mandatory positions of the choreography. The algorithm prioritizes solutions based on time remaining and possible moves to performe , looking for a smooth performance.

1 **Time**

Perform the whole choreography in 2 minutes.

Song: "Ferrari - James Hype"

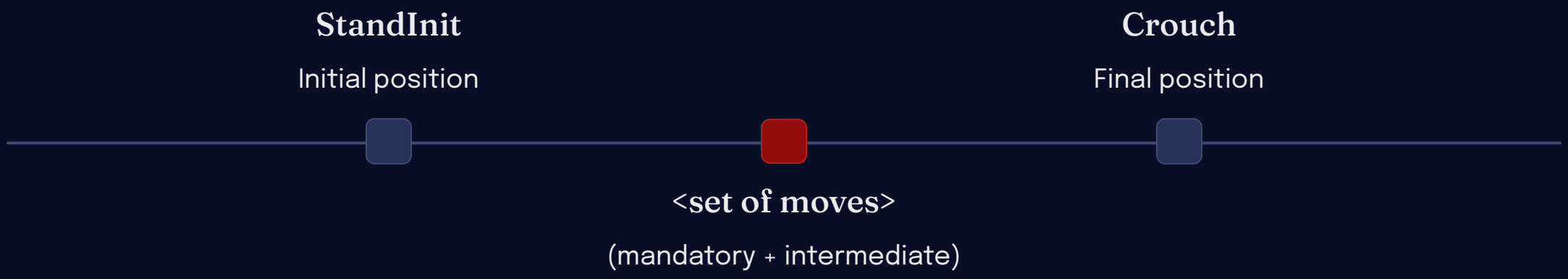
2 **Number of positions**

Execute all the 8 mandatory positions + at least 5 intermediate positions.

Enhancing final choreography

To further optimize the choreography, we avoid to repeat moves that have already been performed.

After executing a position, we randomly shuffle the other possible moves.



Conclusion: Towards More Dynamic Choreography

J&GNaoCrew_demo.mp4

Dynamic Choreography

This project displays the application of AI algorithms for choreographing the NAO robot. The use of iterative deepening search enable us to create a choreography that meets the requirements of mandatory and alternative positions within a specified time frame.

Thank you!