ChoreoLib

LabVIEW

Reference

Version 1.0.0

Table of Contents

Introduction

The ChoreoLib LabVIEW library provides utility functions to read, sample, and follow Choreo trajectories.

The library source code, package build specifications, and test package can be found here https://github.com/jsimpso81/ChoreoLabVIEW

Function Menus

A Choreo function palette contains the Choreo functions and type definitions. This palette can be accessed from the WPI Robotics Library Third Party pallete.

TO DO

Function Help

Each VI includes help that can be accessed using the standard LabVIEW help toggle (Ctrl H).

TO DO

Function Examples

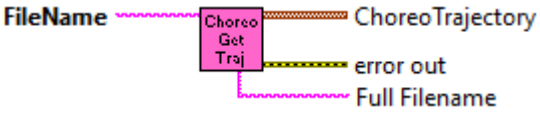
Many of the functions have examples that can be found under the LabVIEW "Find examples..." function. (Help -> Find Examples...). The function examples are easiest to find when "Directory Structure" is selected.

TO DO

Function Groups

Choreo

Choreo_Choreo_GetTrajectory



Load an obstacle grid from a JSON formatted file.

Inputs:

- filename - string - The name of the obstacle grid file. See notes below on file naming.

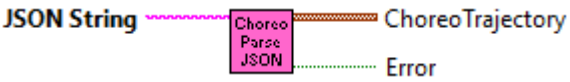
Outputs:

- PathPlanner_ObstacleGrid - cluster - Obstacle grid read from JSON file.
- Error out - cluster - Error cluster
- Full Filename - string - fully qualified file name.

Notes on file naming:

- The file name must include the extention. ".json" is not automatically appended to the name.
- The file name can be a simple file or an absolute path. If a simple file name is used the default path on the RoboRIO is: "home:\lvuser\natinst\LabVIEW Data". On a Windows PC the default path is the LabVIEW default directory. Normally this is: ❸%HOMEDRIVE%%HOMEPATH%\Documents\LabView Data".
- Filenames on the RoboRIO, which runs Linux, are case sensitive.

Choreo_Choreo_TrajectoryFromJSON



Parse an obstacle grid from a JSON formatted string.

Inputs:

- JSON String - string- The string containing the obstacle grid definition.

Outputs:

- PathPlanner_ObstacleGrid - cluster - Obstacle grid read from JSON file.
- Error - boolean - TRUE if an error occured.

Trajectory

Choreo_Trajectory_Flipped

Parse an obstacle grid from a JSON formatted string.

Inputs:

- JSON String - string- The string containing the obstacle grid definition.

Outputs:

- PathPlanner_ObstacleGrid - cluster - Obstacle grid read from JSON file.
- Error - boolean - TRUE if an error occured.

Choreo_Trajectory_GetFinalPose

Parse an obstacle grid from a JSON formatted string.

Inputs:

- JSON String - string- The string containing the obstacle grid definition.

Outputs:

- PathPlanner_ObstacleGrid - cluster - Obstacle grid read from JSON file.
- Error - boolean - TRUE if an error occured.

Choreo_Trajectory_GetInitialPose

Parse an obstacle grid from a JSON formatted string.

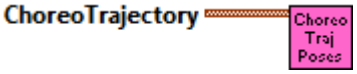
Inputs:

- JSON String - string- The string containing the obstacle grid definition.

Outputs:

- PathPlanner_ObstacleGrid - cluster - Obstacle grid read from JSON file.
- Error - boolean - TRUE if an error occured.

Choreo_Trajectory_GetPoses



Parse an obstacle grid from a JSON formatted string.

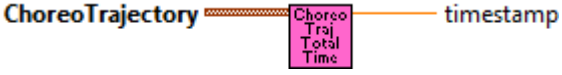
Inputs:

- JSON String - string- The string containing the obstacle grid definition.

Outputs:

- PathPlanner_ObstacleGrid - cluster - Obstacle grid read from JSON file.
- Error - boolean - TRUE if an error occured.

Choreo_Trajectory_GetTotalTime



Parse an obstacle grid from a JSON formatted string.

Inputs:

- JSON String - string- The string containing the obstacle grid definition.

Outputs:

- PathPlanner_ObstacleGrid - cluster - Obstacle grid read from JSON file.
- Error - boolean - TRUE if an error occured.

Choreo_Trajectory_GetTrajState

Parse an obstacle grid from a JSON formatted string.

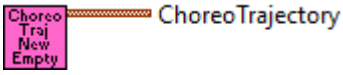
Inputs:

- JSON String - string- The string containing the obstacle grid definition.

Outputs:

- PathPlanner_ObstacleGrid - cluster - Obstacle grid read from JSON file.
- Error - boolean - TRUE if an error occured.

Choreo_Trajectory_New_Empty



Parse an obstacle grid from a JSON formatted string.

Inputs:

- JSON String - string- The string containing the obstacle grid definition.

Outputs:

- PathPlanner_ObstacleGrid - cluster - Obstacle grid read from JSON file.
- Error - boolean - TRUE if an error occured.

Choreo_Trajectory_Sample

Parse an obstacle grid from a JSON formatted string.

Inputs:

- JSON String - string- The string containing the obstacle grid definition.

Outputs:

- PathPlanner_ObstacleGrid - cluster - Obstacle grid read from JSON file.
- Error - boolean - TRUE if an error occured.

Choreo_Trajectory_SampleInternal

Parse an obstacle grid from a JSON formatted string.

Inputs:

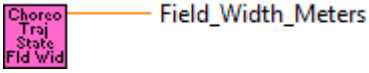
- JSON String - string- The string containing the obstacle grid definition.

Outputs:

- PathPlanner_ObstacleGrid - cluster - Obstacle grid read from JSON file.
- Error - boolean - TRUE if an error occured.

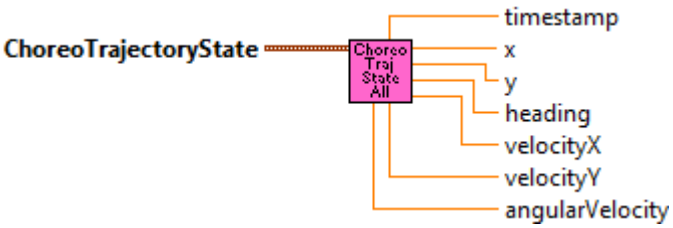
TrajectoryState

Choreo_TrajectoryState_FieldWidth

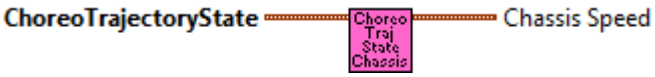


Choreo_TrajectoryState_Flipped

Choreo_TrajectoryState_GetAll



Choreo_TrajectoryState_GetChassisSpeeds

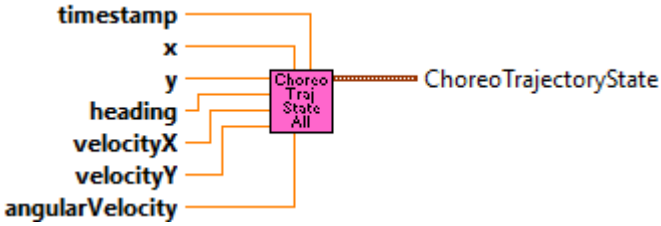


Choreo_TrajectoryState_GetPose

Choreo_TrajectoryState_GetTime

Choreo_TrajectoryState_Interpolate

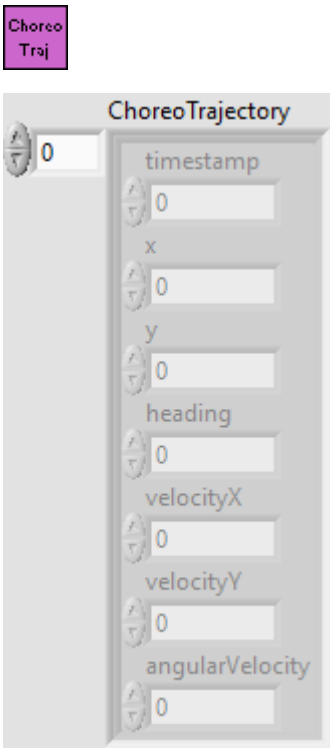
Choreo_TrajectoryState_New



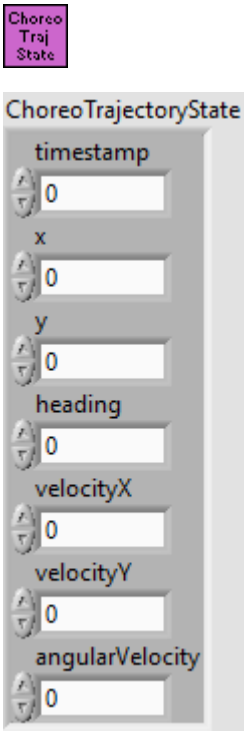
Type Definitions

TypeDef

TypeDef-ChoreoTrajectory



TypeDef-ChoreoTrajectoryState



Enumerated Type Definitions