GravityGradientTorqueModel

5.0

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  Gravity gradient torque model.
- file gravity_torque_messages.cc

  Implement the class GravityTorqueMessages.

Namespaces

- jeod

  Namespace jeod.

Macros

- #define PATH "interactions/gravity_torque/"

5.3.1 Detailed Description

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5.3.2.1 #define PATH "interactions/gravity_torque/"

Definition at line 38 of file gravity_torque_messages.cc.

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Namespace Documentation

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Namespace jeod.

Data Structures

- class GravityTorque

  Computes the torque on an object due to gravitation.
- class GravityTorqueMessages

  Specifies the message IDs used in the gravity torque model.

6.1.1 Detailed Description

Namespace jeod.

Chapter 7

Data Structure Documentation

7.1 jeod::GravityTorque Class Reference

Computes the torque on an object due to gravitation.

`#include <gravity_torque.hh>`

Public Member Functions

- GravityTorque ()

  Construct a GravityTorque object.
- ~GravityTorque ()

  Destruct a GravityTorque object.
- void initialize (DynBody &subject)

  Initialize a GravityTorque object.
- void update ()

  Perform GravityTorque updates.

Data Fields

- double torque [3]

  The output torque, in the structural frame.
- bool active

  Is the model active?

Protected Attributes

- DynBody * subject_body

  The subject body for the gradient torque.

Private Member Functions

- GravityTorque & operator= (const GravityTorque &rhs)
- GravityTorque (const GravityTorque &rhs)

Friends

- class InputProcessor
- void init_attrjeod__GravityTorque ()

7.1.1 Detailed Description

Computes the torque on an object due to gravitation.

Definition at line 52 of file gravity_torque.hh.

7.1.2 Constructor & Destructor Documentation

7.1.2.1 jeod::GravityTorque::GravityTorque (void)

Construct a GravityTorque object.

Definition at line 56 of file gravity_torque.cc.

References active, subject_body, and torque.

7.1.2.2 jeod::GravityTorque::~GravityTorque (void)

Destruct a GravityTorque object.

Definition at line 68 of file gravity_torque.cc.

7.1.2.3 jeod::GravityTorque::GravityTorque (const GravityTorque & *rhs*) [private]

7.1.3 Member Function Documentation

7.1.3.1 void jeod::GravityTorque::initialize (DynBody & *subject*)

Initialize a GravityTorque object.

Parameters

in,out	*subject*	DynBody object subject to the torque

Definition at line 80 of file gravity_torque.cc.

References subject_body.

7.1.3.2 GravityTorque& jeod::GravityTorque::operator= (const GravityTorque & *rhs*) [private]

7.1.3.3 void jeod::GravityTorque::update (void)

Perform GravityTorque updates.

Definition at line 93 of file gravity_torque.cc.

References active, jeod::GravityTorqueMessages::initialization_error, subject_body, and torque.

7.1.4 Friends And Related Function Documentation

7.1.4.1 void init_attrjeod__GravityTorque ( ) [friend]

7.1.4.2 friend class InputProcessor [friend]

Definition at line 54 of file gravity_torque.hh.

7.1.5 Field Documentation

7.1.5.1 bool jeod::GravityTorque::active

Is the model active?

trick_units(–)

Definition at line 76 of file gravity_torque.hh.

Referenced by GravityTorque(), and update().

7.1.5.2 DynBody* jeod::GravityTorque::subject_body [protected]

The subject body for the gradient torque.

trick_units(–)

Definition at line 85 of file gravity_torque.hh.

Referenced by GravityTorque(), initialize(), and update().

7.1.5.3 double jeod::GravityTorque::torque[3]

The output torque, in the structural frame.

trick_units(N*m)

Definition at line 71 of file gravity_torque.hh.

Referenced by GravityTorque(), and update().

The documentation for this class was generated from the following files:

- gravity_torque.hh
- gravity_torque.cc

7.2 jeod::GravityTorqueMessages Class Reference

Specifies the message IDs used in the gravity torque model.

`#include <gravity_torque_messages.hh>`

Static Public Attributes

- static char const * initialization_error = "interactions/gravity_torque/" "initialization_error"

  Issued when the model has not been properly initialized.

Private Member Functions

- GravityTorqueMessages (void)
- GravityTorqueMessages (const GravityTorqueMessages &)
- GravityTorqueMessages & operator= (const GravityTorqueMessages &)

Friends

- class InputProcessor
- void init_attrjeod__GravityTorqueMessages ()

7.2.1 Detailed Description

Specifies the message IDs used in the gravity torque model.

Definition at line 48 of file gravity_torque_messages.hh.

7.2.2 Constructor & Destructor Documentation

7.2.2.1 jeod::GravityTorqueMessages::GravityTorqueMessages (void) [private]

7.2.2.2 jeod::GravityTorqueMessages::GravityTorqueMessages (const GravityTorqueMessages &) [private]

7.2.3 Member Function Documentation

7.2.3.1 GravityTorqueMessages& jeod::GravityTorqueMessages::operator= (const GravityTorqueMessages &) [private]

7.2.4 Friends And Related Function Documentation

7.2.4.1 void init_attrjeod__GravityTorqueMessages ( ) [friend]

7.2.4.2 friend class InputProcessor [friend]

Definition at line 50 of file gravity_torque_messages.hh.

7.2.5 Field Documentation

7.2.5.1 char const * jeod::GravityTorqueMessages::initialization_error = "interactions/gravity_torque/" "initialization_error" [static]

Issued when the model has not been properly initialized.

trick_units(–)

Definition at line 58 of file gravity_torque_messages.hh.

Referenced by jeod::GravityTorque::update().

The documentation for this class was generated from the following files:

- gravity_torque_messages.hh
- gravity_torque_messages.cc

Chapter 8

File Documentation

8.1 gravity_torque.cc File Reference

Gravity gradient torque model.

```
#include <cstddef>
#include "dynamics/dyn_body/include/dyn_body.hh"
#include "utils/math/include/matrix3x3.hh"
#include "utils/math/include/vector3.hh"
#include "utils/message/include/message_handler.hh"
#include "../include/gravity_torque.hh"
#include "../include/gravity_torque_messages.hh"
```

Namespaces

- jeod

  Namespace jeod.

8.1.1 Detailed Description

Gravity gradient torque model.

Definition in file gravity_torque.cc.

8.2 gravity_torque.hh File Reference

Defines the class GravityTorque.

```
#include "dynamics/dyn_body/include/class_declarations.hh"
#include "utils/sim_interface/include/jeod_class.hh"
```

Data Structures

- class jeod::GravityTorque

  Computes the torque on an object due to gravitation.

Namespaces

- jeod

  Namespace jeod.

8.2.1 Detailed Description

Defines the class GravityTorque.

Definition in file gravity_torque.hh.

8.3 gravity_torque_messages.cc File Reference

Implement the class GravityTorqueMessages.

```
#include "../include/gravity_torque_messages.hh"
```

Namespaces

- jeod

  Namespace jeod.

Macros

- #define PATH "interactions/gravity_torque/"

8.3.1 Detailed Description

Implement the class GravityTorqueMessages.

Definition in file gravity_torque_messages.cc.

8.4 gravity_torque_messages.hh File Reference

Define the class GravityTorqueMessages, the class that specifies the message IDs used in the gravity torque model.

```
#include "utils/sim_interface/include/jeod_class.hh"
```

Data Structures

- class jeod::GravityTorqueMessages

  Specifies the message IDs used in the gravity torque model.

Namespaces

- jeod

  Namespace jeod.

8.4.1 Detailed Description

Define the class GravityTorqueMessages, the class that specifies the message IDs used in the gravity torque model.

Definition in file gravity_torque_messages.hh.

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