

magic



UTS PR2 Operation

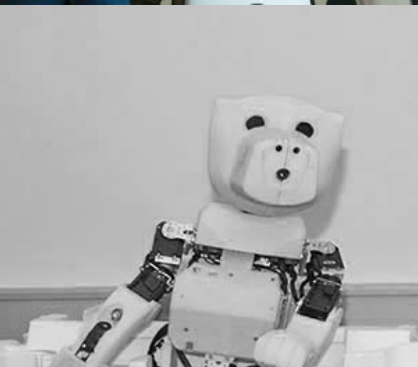
- FUNCTIONS
- CHANGING THE ...
- GETTING THE ...
- BEHAVIOR ...
- ...
- ...
- ...
- ...
- ...
- ...
- ...
- ...

# ROS Message thief

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s magic



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① Introduction  
 - background

② Problem  
 - key challenges  
 - opportunities  
 - on case

③ Model  
 - insight  
 - ACHO

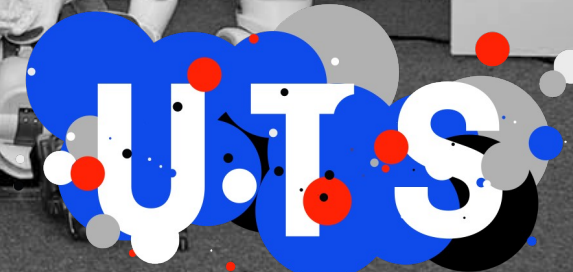
4<sup>th</sup> April  
 IRAD  
 17-19-11  
 Portugal

Implementation

possibility  
 - socio-economic  
 - user acceptance  
 - cultural  
 - prototype

$R_z(\theta) \cdot T_z(d) \cdot R_x(\alpha)$

$z_1, z_2, z_3$   
 $x_1, x_2, x_3$   
 $z_0, z_1, z_2$



# Hey robot, talk to me

```
03:44:03 http://localhost:11311
~$ rostopic list
/awesome_topic
/clock
/rosout
/rosout_agg
03:46:40 http://localhost:11311
~$ rostopic echo /awesome_topic
ERROR: Cannot load message class for [razer_hydra/Hydra]. Are your messages built?
03:46:44 http://localhost:11311
~$ rostopic info /awesome_topic
Type: razer_hydra/Hydra

Publishers:
 * /rostopic_6214_1506015994964 (http://xpssam:37756/)

Subscribers: None
```

# Hey robot, talk to me

```
03:44:03 http://localhost:11311
~$ rostopic list
/awesome_topic
/clock
/rosout
/rosout_agg
03:46:40 http://localhost:11311
~$ rostopic echo /awesome_topic
ERROR: Cannot load message class for [razer_hydra/Hydra]. Are your messages built?
[WARN] [WallTime: 1506032985.518184] Could not process inbound connection: Client [/rostopic_30898_1506032985291] wants topic [/awesome_topic] to have datatype/md5sum [razer_hydra/Hydra/dec54561e4b7f00b7db31b149d17c1eb], but our version has [razer_hydra/Hydra/63e785fc6f00b7db31b149d17c1eb]
ppping connection.{'message_definition': "Header header\nHydraPaddle[2]
int8 RIGHT = 1\nuint8 POTATO = 3\n\n=====\nMSG: std_msgs/Header\n# Standard metadata for higher
# This is generally used to communicate timestamped data \n# in a parti
n# sequence ID: consecutively increasing ID \nuint32 seq\n#Two-integer
as:\n# * stamp.sec: seconds (stamp_secs) since epoch (in Python the var
stamp.nsec: nanoseconds since stamp_secs (in Python the variable is ca
ng sugar is provided by the client library\ntime stamp\n#Frame this dat
o frame\n# 1: global frame\nstring frame_id\n\n=====\nMSG: razer_hydra/HydraPaddle\ngeometry_ms
[7] buttons\nfloat32[2] joy\nfloat32 trigger\n\n=====\nMSG: geometry_msgs/Transform\n# This rep
n two coordinate frames in free space.\n\nVector3 translation\nQuaterni
=====\nMS
This represents a vector in free space. \n# It is only meant to represe
t does not\n# make sense to apply a translation to it (e.g., when apply
sformation to a Vector3, tf2 will only apply the\n# rotation). If you w
able too, use the\n# geometry_msgs/Point message instead.\n\nfloat64 x\
=====\n
ternion\n# This represents an orientation in free space in quaternion f
\nfloat64 z\nfloat64 w\n", 'callerid': '/rostopic_30898_1506032985291',
```



# Problem solved

`make_ws_from_all_publishers.py`

```
07:48:49 http://localhost:11311
~/solve_my_problems$ git clone https://github.com/uts-magic-lab/message_thief
Cloning into 'message_thief'...
remote: Counting objects: 27, done.
remote: Compressing objects: 100% (14/14), done.
remote: Total 27 (delta 12), reused 27 (delta 12), pack-reused 0
Unpacking objects: 100% (27/27), done.
Checking connectivity... done.
07:48:52 http://localhost:11311
~/solve_my_problems$ cd message_thief/
07:48:54 http://localhost:11311 (master)
~/solve_my_problems/message_thief$ ls
get_all_runtime_msgs.py      make_ws_from_topic_publisher.py  recreate_msgs.py
make_ws_from_all_publishers.py  README.md                        steal_msg_from_pub.py
07:48:55 http://localhost:11311 (master)
~/solve_my_problems/message_thief$ ./make_ws_from_all_publishers.py
```

# Problem solved

`make_ws_from_all_publishers.py`

```
Done, your workspace is at: /tmp/catkin_wsPa80Y3/src
We created 4 packages,
with 7 messages in them:
Package: razer_hydra
  Messages: ['Hydra', 'HydraPaddle']
Package: std_msgs
  Messages: ['Header']
Package: geometry_msgs
  Messages: ['Transform', 'Vector3', 'Quaternion']
Package: rosgraph_msgs
  Messages: ['Log']
```

```
07:49:22 http://localhost:11311 (master)
~/solve_my_problems/message_thief$ ls /tmp/catkin_wsPa80Y3/src
geometry_msgs  razer_hydra  rosgraph_msgs  std_msgs
```

# Problem solved

`make_ws_from_all_publishers.py`

```
Done, your workspace is at: /tmp/catkin_wsPa80Y3/src
We created 4 packages,
with 7 messages in them:
Package: razer_hydra
  Messages: ['Hydra', 'HydraPaddle']
Package: std_msgs
  Messages: ['Header']
Package: geometry_msgs
  Messages: ['Transform']
Package: rosgraph_msgs
  Messages: ['Log']
```

```
/tmp/catkin_wsAio9PR/src$ ls
actionlib_msgs      moveit_msgs         pal_startup_msgs   teleop_tools_msgs
bond                nav_msgs            pal_tablet_msgs    tf
control_msgs        object_recognition_msgs  pal_waypoint_msgs  tf2_msgs
diagnostic_msgs     octomap_msgs        play_motion_msgs   tf_lookup
diff_drive_controller  pal_common_msgs     remote_shell        theora_image_transport
dynamic_reconfigure  pal_control_msgs    rosgraph_msgs      trajectory_msgs
geometry_msgs         pal_detection_msgs  sensor_msgs         twist_mux_msgs
map_msgs             pal_device_msgs     shape_msgs          visualization_msgs
mml1_msgs            pal_interaction_msgs  smach_msgs
move_base_msgs       pal_navigation_msgs  std_msgs
```

```
07:49:22 http://localhost:11311 (master)
~/solve_my_problems/message_thief$ ls /tmp/catkin_wsPa80Y3/src
geometry_msgs  razer_hydra  rosgraph_msgs  std_msgs
```

# Problem solved 2

## get\_all\_runtime\_msgs.py

```
~/solve_my_problems/message_thief$ ./get_all_runtime_msgs.py
Getting currently listening topics and their types...
Found 2 listening topics.
Getting currently published topics and their types...
Found 3 topics.
Merging both topics lists...
Found 4 total topics.
Found 0 possible action servers...
Confirmed 0 action servers.
Found 35 messages used.
Found 3 message packages to be fetch.
We found 36 message files that we directly depend.
We are sure that 39 message files are depended.
Getting current services...
Found 9 services.
Found 3 service messages used.
Found 3 service message packages to be fetch.
Found we need 4 messages for the services.
Adding to what we had, now found we need 42 message files.
We looped 2 times to find more messages...
-----
Final resume:
-----
We'll generate 10 packages.
With 71 msg definition files.
And 3 srv service definition files.
And 0 action definition files.
```



# Problem solved 2

## get\_all\_runtime\_msgs.py

```
~/solve_my_problems/message_thief$ ./get_all_runtime_msgs.py
Getting currently listening topics and their types...
Found 2 listening topics.
Getting currently published topics and their types...
Found 3 topics.
Merging both topics lists...
Found 4 total topics.
Found 0 possible action servers...
Confirmed 0 action servers.
Found 35 messages used.
Found 3 message packages to be fetch.
We found 36 message files that we directly depend.
We are sure that 39 message files are depended.
Getting current services...
Found 9 services.
Found 3 service messages used.
Found 3 service message packages to be fetch.
Found we need 4 messages for the services.
Adding to what we had, now found we need 42 message files.
We looped 2 times to find more messages...
-----
Final resume:
-----
We'll generate 10 packages.
With 71 msg definition files.
And 3 srv service definition files.
And 0 action definition files.
```

```
-----
Final resume:
```

```
-----
We'll generate 49 packages.
With 199 msg definition files.
And 100 srv service definition files.
And 19 action definition files.
```

```
~/solve_my_problems/message_thief$ ls /tmp/catkin_wsV7SMbg/src/
geometry_msgs  object_recognition_msgs  roscpp          sensor_msgs  std_msgs
moveit_msgs    razer_hydra              rosgraph_msgs  shape_msgs   trajectory_msgs
```

# ROS Message thief

[https://github.com/uts-magic-lab/message\\_thief](https://github.com/uts-magic-lab/message_thief)

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