

A User Manual

Must be using **Ubuntu 20.04.6 LTS** for proper compatibility with ROS software packages and hence TIAGo robot.

Install prerequisites by either:

- Using [this revision of the RoboCup container](#), which you can build using [these instructions](#).
- Install [ROS noetic with TIAGo natively](#) then install requirements from container definition manually.

Now create your ROS workspace:

```
1 mkdir -p ~/lasr_ws/src
2 cd ~/lasr_ws/src
3 git clone -b insert/soft-fork/bsc-receptionist --depth=1 https://github.com/insertish/lasr-base lasr-base
4 git clone https://git.is.horse/insert/university/undergraduate-project bsc-project
5
6 cd ~/lasr_ws
7 catkin build bsc_receptionist # this may take a while for the first time (10-20 minutes)
8
9 # now also download models:
10 # src/lasr-base/common/vision/lasr_vision_torch/models/best_model_epoch_31.pth
11 # (find them here: https://tank.insert.moe/archive/projects/bsc-project)
12
13 # to run the task later, you must always:
14 source ~/lasr_ws/devel/setup.bash
```

Train the conversation assistant neural network:

```
1 roscd bsc_receptionist/assistant
2 rosrn lasr_rasa rasa train nlu
```

Check microphone information:

```
1 rosrn lasr_speech_recognition_whisper list_microphones.py
2 # Take note of the index corresponding to your desired microphone
```

Start up everything we'll need to run the task:

```
1 roslaunch bsc_receptionist services.launch microphone:=1 robot:=true
2 # Wait for "All services are ready!" to appear
3
4 # You may need to set sample rate:
5 roslaunch bsc_receptionist services.launch microphone:=1 sample_rate:=44100 robot:=true
```

```
6 # .. individually try running service and see if it crashes:
7 rosrune lasr_speech_recognition_whisper transcribe_microphone_server --mic_device
1 --sample_rate 44100
```

If you are running for the first time, you must configure the arena:

```
1 rosrune bsc_receptionist configure points set home bash
2 rosrune bsc_receptionist configure points set wait_for_person
3 rosrune bsc_receptionist configure points set seating_area
4 rosrune bsc_receptionist configure polygons set entrance 4
```

You may also optionally learn the host's name and face data to improve reliability:

```
1 rosrune bsc_receptionist configure learn-host <their_name> bash
```

Then save the configuration data:

```
1 rosrune bsc_receptionist configure save <name> bash
```

For subsequent runs, you can either re-select a configuration using the CLI above or run:

```
1 rosrune bsc_receptionist configure load <name> bash
```

Now you can run the task:

```
1 rosrune bsc_receptionist task 2>&1 | tee "$(date +%Y_%m_%d_%I_%M_%p").log" bash
2
3 # .. if you want to log what happens:
4 ./record-debug.sh
```

You can choose to run on a simulated robot too:

```
1 roslaunch tiago_2dnav_gazebo tiago_navigation.launch public_sim:=true bash
2 rosservice call /gazebo/pause_physics "{}" # save power
3 roslaunch bsc_receptionist services.launch
4
5 # rosservice call /gazebo/unpause_physics "{}" .. automatically called
6
7 rosrune bsc_receptionist configure load simulation
8 rosrune bsc_receptionist task yes 2>&1 | tee "$(date +%Y_%m_%d_%I_%M_%p").log" #
  (runs with simulation helpers)
9
10 # if you want to see speech output:
11 rostopic echo /bsc_receptionist/tts
```

A.1 Operator Guidance

- Ensure the correct operating procedure is followed for the robot in use.

Understand the safety features of the robot you are running the task on, make sure you know how to stop the robot in an emergency, and always have someone attending the robot.

- Ensure premises have notice that facial recognition is in use.
- Provide users with a notice that data is being collected to perform the task which also states how long, and their rights to this data.
- Make sure to clean up any user data that may remain.

If the task crashes out, face vectors may remain on disk so these must be deleted manually.

- Not save any facial feature vectors to configuration files.

Or create a process to ensure that this information is wiped after the execution of the task.

B Receptionist Task Rules

Disclaimer

The following section is imported word for word from the RoboCup rulebook. It is not claimed as original work by the author and is simply here as a point of reference since the official rulebook is subject to changes over time and may not accurately reflect what this project intends to solve.

The robot has to take two new guests to the living room to introduce them and offer a free place to sit.

Main goal: Introduce and usher two newcomers to a party and maintain appropriate gaze direction (at person, direction of navigation).

Optional goals:

1. Open the entrance door for each arriving guest.
2. Describe the first guest for the second guest.

B.1.1 Focus

System Integration, Human-Robot Interaction, Person Detection, Person Recognition

B.1.2 Setup

- Location:
 - The test takes place in the living room.
 - The robot starts inside the Arena at a predefined location near the entrance door.
 - Entrance: The entrance door is open by default. The team leader can request to close the door to score additional points by opening it for the guests.
- People:
 - Host: The host's name and favorite drink will be announced before the test. The host is already sitting in the living room.
- Guests: Both guests have a name and favorite drink. An arriving guest will either step in front of the robot or ring the bell if the door is closed. Guests have to be guided to the living room to be introduced. Each of the guest will arrive separately. The sound of the bell will be provided to teams during setup period before competition.

B.1.3 Procedure

- Introductions: When introducing guests, the robot must clearly identify the person being introduced and state their name and favorite drink. Introducing two people means to introduce them to each other.
- Seating People: The robot must point at a place or location where the guest can sit.
- Switching Places: Guests may switch places after they were seated.
- Describing the First Guest: Naming at least 4 characteristics of the first guest, i.e., color of clothes, color of hair, gender, and age, earns bonus points.
- Looking at person/direction of navigation: During verbal interactions and descriptions of people, robot looks at the conversational partner. Robot can point at the person being introduced/described or alternate gaze between two people. During navigation

robot looks in the direction where it is going. Persistently gazing towards unrelated person or incorrect direction while moving during the task deducts points.

B.1.4 Additional rules and remarks

1. Misunderstanding: Not understanding the guests and asking them again is fine. Continuing with a wrong name or drink causes a score reduction of 50pts.
2. Partial Scoring: The main task allows partial (per guest) scoring.
3. Deus ex Machina: Score reduction applies per guest as follows:
 - Custom Operator: Since the main focus of the test is HRI, no custom operator can be chosen.
 - Alternative HRI: Using an alternative HRI to understand a guest causes a score reduction of 75pts.
 - Recognizing People: If the robot has to ask for help to identify people, score is reduced by 200pts.

B.1.5 Instructions

To Referee

The referees need to:

- Assign name and drink to 3 volunteers.
- Arrange (and re-arrange) people in the living room.
- Open the door when requested by the robot.

To OC

During setup day:

- Provide the dorrbell sound.

At least two hours before test:

- Announce starting position.
- Announce host's name and favorite drink.
- Recruit volunteers as host and guests.

C Raw Experiment Test Data

Table 1: Face Reidentification Success Confidence Values

train:test ratio	subject	confidence
1:14	joe biden	0.7357985973358154
1:14	joe biden	0.6721391677856445
1:14	joe biden	0.7357816696166992
1:14	joe biden	0.6836422681808472
1:14	joe biden	0.7181814908981323
1:14	joe biden	0.7302430868148804
1:14	joe biden	0.6772584319114685
1:14	joe biden	0.7415577173233032
1:14	joe biden	0.7509679794311523
1:14	joe biden	0.6883593797683716
1:14	joe biden	0.7565900683403015
1:14	joe biden	0.8170274496078491
1:14	joe biden	0.6840125322341919
1:14	donald trump	0.733590841293335
1:14	donald trump	0.691163182258606
1:14	donald trump	0.7933821082115173
1:14	donald trump	0.7849321365356445
1:14	donald trump	0.6859419345855713
1:14	donald trump	0.7776046395301819
1:14	donald trump	0.8050525188446045
1:14	donald trump	0.7409939765930176
1:14	donald trump	0.8555527925491333
1:14	donald trump	0.7863603234291077
1:14	donald trump	0.644922137260437
1:14	donald trump	0.8289690017700195
1:14	donald trump	0.7527208924293518
1:14	donald trump	0.84333735704422
1:14	sibil	0.682898223400116
1:14	sibil	0.7714353799819946
1:14	sibil	0.8112803101539612
1:14	sibil	0.7731167674064636
1:14	sibil	0.8187808990478516
1:14	sibil	0.7771989703178406
1:14	sibil	0.8082351684570313

train:test ratio	subject	confidence
1:14	hugh laurie	0.7232257127761841
1:14	hugh laurie	0.8387451171875
1:14	hugh laurie	0.7380037903785706
1:14	hugh laurie	0.8496518135070801
1:14	hugh laurie	0.7477470636367798
1:14	hugh laurie	0.8598079681396484
1:14	hugh laurie	0.8041950464248657
1:14	hugh laurie	0.730096697807312
1:14	hugh laurie	0.7337040305137634
1:14	hugh laurie	0.7100955843925476
1:14	hugh laurie	0.7659644484519958
1:14	hugh laurie	0.7086827754974365
1:14	hugh laurie	0.604534387588501
1:14	harry potter	0.7354062795639038
1:14	harry potter	0.7756145000457764
1:14	harry potter	0.7641869783401489
1:14	harry potter	0.7976421117782593
1:14	harry potter	0.7931581735610962
1:14	harry potter	0.6617271900177002
1:14	harry potter	0.7586406469345093
1:14	harry potter	0.7170488834381104
1:14	harry potter	0.7487838268280029
1:14	harry potter	0.7694998979568481
1:14	harry potter	0.8163975477218628
1:14	harry potter	0.6820905208587646
1:14	harry potter	0.7757350206375122
1:14	harry potter	0.7700190544128418
2:13	joe biden	0.7357816696166992
2:13	joe biden	0.6836422681808472
2:13	joe biden	0.7181814908981323
2:13	joe biden	0.7745990753173828
2:13	joe biden	0.7509679794311523
2:13	joe biden	0.7565900683403015
2:13	joe biden	0.8170274496078491
2:13	joe biden	0.6840125322341919
2:13	donald trump	0.691163182258606
2:13	donald trump	0.7933821082115173

train:test ratio	subject	confidence
2:13	donald trump	0.7849321365356445
2:13	donald trump	0.6859419345855713
2:13	donald trump	0.7776046395301819
2:13	donald trump	0.8267953395843506
2:13	donald trump	0.7409939765930176
2:13	donald trump	0.8555527925491333
2:13	donald trump	0.7863603234291077
2:13	donald trump	0.6652734875679016
2:13	donald trump	0.8289690017700195
2:13	donald trump	0.7527208924293518
2:13	donald trump	0.84333735704422
2:13	sibil	0.839188814163208
2:13	sibil	0.8373178243637085
2:13	sibil	0.7731167674064636
2:13	sibil	0.8187808990478516
2:13	sibil	0.7784175872802734
2:13	sibil	0.8082351684570313
2:13	hugh laurie	0.8387451171875
2:13	hugh laurie	0.7380037903785706
2:13	hugh laurie	0.8496518135070801
2:13	hugh laurie	0.7477470636367798
2:13	hugh laurie	0.8598079681396484
2:13	hugh laurie	0.8041950464248657
2:13	hugh laurie	0.8020421266555786
2:13	hugh laurie	0.7397257089614868
2:13	hugh laurie	0.7813093662261963
2:13	hugh laurie	0.7741521596908569
2:13	hugh laurie	0.7956957817077637
2:13	hugh laurie	0.6749849319458008
2:13	harry potter	0.7756145000457764
2:13	harry potter	0.7740727066993713
2:13	harry potter	0.7976421117782593
2:13	harry potter	0.7931581735610962
2:13	harry potter	0.6617271900177002
2:13	harry potter	0.7586406469345093
2:13	harry potter	0.7674265503883362
2:13	harry potter	0.7887575626373291

train:test ratio	subject	confidence
2:13	harry potter	0.7739530801773071
2:13	harry potter	0.8163975477218628
2:13	harry potter	0.6820905208587646
2:13	harry potter	0.7757350206375122
2:13	harry potter	0.8283752202987671
5:10	joe biden	0.85817551612854
5:10	joe biden	0.7745990753173828
5:10	joe biden	0.7741769552230835
5:10	joe biden	0.8138647079467773
5:10	joe biden	0.8362693786621094
5:10	joe biden	0.776039719581604
5:10	joe biden	0.7893009185791016
5:10	joe biden	0.7701683044433594
5:10	joe biden	0.8170274496078491
5:10	joe biden	0.8206902742385864
5:10	donald trump	0.7295486330986023
5:10	donald trump	0.7776046395301819
5:10	donald trump	0.8267953395843506
5:10	donald trump	0.7613295912742615
5:10	donald trump	0.8555527925491333
5:10	donald trump	0.7863603234291077
5:10	donald trump	0.6652734875679016
5:10	donald trump	0.8289690017700195
5:10	donald trump	0.7527208924293518
5:10	donald trump	0.84333735704422
5:10	sibil	0.8187808990478516
5:10	sibil	0.8549691438674927
5:10	sibil	0.852109432220459
5:10	hugh laurie	0.7775695323944092
5:10	hugh laurie	0.8598079681396484
5:10	hugh laurie	0.8743372559547424
5:10	hugh laurie	0.8020421266555786
5:10	hugh laurie	0.7397257089614868
5:10	hugh laurie	0.7813093662261963
5:10	hugh laurie	0.7883684635162354
5:10	hugh laurie	0.7956957817077637
5:10	hugh laurie	0.6749849319458008

train:test ratio	subject	confidence
5:10	harry potter	0.8254901170730591
5:10	harry potter	0.752743124961853
5:10	harry potter	0.7905007600784302
5:10	harry potter	0.7958959341049194
5:10	harry potter	0.8027729392051697
5:10	harry potter	0.7739530801773071
5:10	harry potter	0.8163975477218628
5:10	harry potter	0.7456063628196716
5:10	harry potter	0.7966417074203491
5:10	harry potter	0.8415737152099609

Table 2: Face Detection Confidence Values

subject	confidence
joe biden	0.9999805688858032
joe biden	0.9999812841415404
joe biden	0.9931897521018982
joe biden	0.9995490908622742
joe biden	0.99991637468338
joe biden	0.9989603757858276
joe biden	0.9999495148658752
joe biden	0.9999971985816956
joe biden	0.9994239807128906
joe biden	0.9998262524604796
joe biden	0.9999948143959044
joe biden	0.9998451471328736
joe biden	0.9999476671218872
joe biden	0.999940812587738
joe biden	0.9984959363937378
donald trump	0.9999997615814208
donald trump	0.9998850226402284
donald trump	0.9999030232429504
donald trump	0.9999701976776124
donald trump	0.9995033740997314
donald trump	0.9993804693222046
donald trump	0.9999977350234984
donald trump	0.9993677735328674
donald trump	0.9998642206192015
donald trump	0.9999788999557496
donald trump	0.999949038028717
donald trump	0.99994695186615
donald trump	0.9997084140777588
donald trump	0.9976245164871216
donald trump	0.999405026435852
sibil	0.9999879002571106
sibil	0.9999552369117736
sibil	0.9999915957450868
sibil	0.9999894499778748
sibil	0.9999885559082032
sibil	0.9999791383743286

subject	confidence
sibil	0.999890148639679
sibil	0.9997892379760742
hugh laurie	0.9989954829216005
hugh laurie	0.9991700649261476
hugh laurie	0.999858856201172
hugh laurie	0.9999736547470092
hugh laurie	0.9999995827674866
hugh laurie	0.999165654182434
hugh laurie	0.9994720816612244
hugh laurie	0.9999452829360962
hugh laurie	0.9999427795410156
hugh laurie	0.9999532103538512
hugh laurie	0.9999787211418152
hugh laurie	0.9997039437294006
hugh laurie	0.9999366402626038
hugh laurie	0.9996553659439088
harry potter	0.9976796507835388
harry potter	0.999997079372406
harry potter	0.999990701675415
harry potter	0.9999942183494568
harry potter	0.9999260902404784
harry potter	0.9999999403953552
harry potter	0.9998631477355956
harry potter	0.9999962449073792
harry potter	0.9999566078186036
harry potter	0.9999913573265076
harry potter	0.9999586939811708
harry potter	0.9999999403953552
harry potter	0.9999921321868896
harry potter	0.9999955892562866
harry potter	0.9999954700469972

model	set	expected	result
tiny.en	clean	it's finn	it's finn
small.en	clean	it's finn	it's finn
medium.en	clean	it's finn	it's finn
tiny.en	clean	it's finn	it's been
small.en	clean	it's finn	it's fin
medium.en	clean	it's finn	it's finn
tiny.en	clean	it's finn	it's been
small.en	clean	it's finn	it's finn
medium.en	clean	it's finn	it's finn
tiny.en	clean	it's me, mason	it's me, mason
small.en	clean	it's me, mason	it's me, mason
medium.en	clean	it's me, mason	it's me, mason
tiny.en	clean	it's me, mason	it's me, mason
small.en	clean	it's me, mason	it's me, mason
medium.en	clean	it's me, mason	it's me, mason
tiny.en	clean	it's me, mason	it's me, mason
small.en	clean	it's me, mason	it's me, mason
medium.en	clean	it's me, mason	it's me, mason
tiny.en	clean	it's me, mason	it's me, mason
small.en	clean	it's me, mason	it's me, mason
medium.en	clean	it's me, mason	it's me, mason
tiny.en	clean	it's me, mason	it's me, mason
small.en	clean	it's me, mason	it's me, mason
medium.en	clean	it's me, mason	it's me, mason
tiny.en	clean	jane	jane
small.en	clean	jane	jane
medium.en	clean	jane	jane
tiny.en	clean	jane	jane
small.en	clean	jane	jane
medium.en	clean	jane	jane
tiny.en	clean	jane	jane
small.en	clean	jane	jane
medium.en	clean	jane	jane
tiny.en	clean	jane	jane
small.en	clean	jane	jane
medium.en	clean	jane	jane
tiny.en	clean	jane	jane

model	set	expected	result
small.en	clean	jane	jane
medium.en	clean	jane	jane
tiny.en	clean	milk	milk
small.en	clean	milk	milk
medium.en	clean	milk	milk
tiny.en	clean	milk	milk
small.en	clean	milk	milk
medium.en	clean	milk	milk
tiny.en	clean	milk	milk
small.en	clean	milk	milk
medium.en	clean	milk	milk
tiny.en	clean	milk	milk
small.en	clean	milk	milk
medium.en	clean	milk	milk
tiny.en	clean	milk	milk
small.en	clean	milk	milk
medium.en	clean	milk	milk
tiny.en	clean	my favourite drink is iced tea	my favourite drink is iced tea
small.en	clean	my favourite drink is iced tea	my favourite drink is iced tea
medium.en	clean	my favourite drink is iced tea	my favourite drink is iced tea
tiny.en	clean	my favourite drink is iced tea	my favourite drink is iced tea
small.en	clean	my favourite drink is iced tea	my favourite drink is iced tea
medium.en	clean	my favourite drink is iced tea	my favourite drink is iced tea
tiny.en	clean	my favourite drink is iced tea	my favourite drink is iced tea
small.en	clean	my favourite drink is iced tea	my favourite drink is iced tea
medium.en	clean	my favourite drink is iced tea	my favourite drink is iced tea
tiny.en	clean	my favourite drink is iced tea	my favourite drink is iced tea
small.en	clean	my favourite drink is iced tea	my favourite drink is iced tea

model	set	expected	result
medium.en	clean	my favourite drink is iced tea	my favourite drink is iced tea
tiny.en	clean	my favourite drink is iced tea	my favourite drink is iced tea
small.en	clean	my favourite drink is iced tea	my favourite drink is iced tea
medium.en	clean	my favourite drink is iced tea	my favourite drink is iced tea
tiny.en	clean	my name is charlie	my name is charlie
small.en	clean	my name is charlie	my name is charlie
medium.en	clean	my name is charlie	my name is charlie
tiny.en	clean	my name is charlie	my name is charlie
small.en	clean	my name is charlie	my name is charlie
medium.en	clean	my name is charlie	my name is chani
tiny.en	clean	my name is charlie	my name is toni
small.en	clean	my name is charlie	my name is charlie
medium.en	clean	my name is charlie	my name is chani
tiny.en	clean	my name is charlie	my name is chali
small.en	clean	my name is charlie	my name is charlie
medium.en	clean	my name is charlie	my name is charlie
tiny.en	clean	my name is charlie	my name is charlie
small.en	clean	my name is charlie	my name is charlie
medium.en	clean	my name is charlie	my name is charlie
tiny.en	clean	orange juice	orange juice
small.en	clean	orange juice	orange juice
medium.en	clean	orange juice	orange juice
tiny.en	clean	orange juice	orange juice
small.en	clean	orange juice	orange juice
medium.en	clean	orange juice	orange juice
tiny.en	clean	orange juice	orange juice
small.en	clean	orange juice	orange juice
medium.en	clean	orange juice	orange juice
tiny.en	clean	orange juice	orange juice
small.en	clean	orange juice	orange juice
medium.en	clean	orange juice	orange juice
tiny.en	clean	orange juice	orange juice
small.en	clean	orange juice	orange juice
medium.en	clean	orange juice	orange juice

model	set	expected	result
tiny.en	clean	tropical juice	tropical juice
small.en	clean	tropical juice	tropical juice
medium.en	clean	tropical juice	tropical juice
tiny.en	clean	tropical juice	drop good juice
small.en	clean	tropical juice	tropical juice
medium.en	clean	tropical juice	tropical juice
tiny.en	clean	tropical juice	tropical juice
small.en	clean	tropical juice	tropical juice
medium.en	clean	tropical juice	tropical juice
tiny.en	clean	tropical juice	tropical juice
small.en	clean	tropical juice	tropical juice
medium.en	clean	tropical juice	tropical juice
tiny.en	clean	tropical juice	drop good juice
small.en	clean	tropical juice	tropical juice
medium.en	clean	tropical juice	tropical juice
tiny.en	busy coffee shop	i like to drink cola	i like to drink color
small.en	busy coffee shop	i like to drink cola	i like to drink cola
medium.en	busy coffee shop	i like to drink cola	i like to drink cola
tiny.en	busy coffee shop	i like to drink cola	i like to drink color
small.en	busy coffee shop	i like to drink cola	i like to drink cola
medium.en	busy coffee shop	i like to drink cola	i like to drink cola
tiny.en	busy coffee shop	i like to drink cola	i like to drink color
small.en	busy coffee shop	i like to drink cola	i like to drink color
medium.en	busy coffee shop	i like to drink cola	i like to drink cola
tiny.en	busy coffee shop	i like to drink cola	i like to drink colour
small.en	busy coffee shop	i like to drink cola	i like to drink colour
medium.en	busy coffee shop	i like to drink cola	i like to drink cola
tiny.en	busy coffee shop	i like to drink cola	i like to drink color
small.en	busy coffee shop	i like to drink cola	i like to drink colour
medium.en	busy coffee shop	i like to drink cola	i like to drink cola
tiny.en	busy coffee shop	i'm robin	i'm robin
small.en	busy coffee shop	i'm robin	i'm robin
medium.en	busy coffee shop	i'm robin	i'm robin
tiny.en	busy coffee shop	i'm robin	i'm robin
small.en	busy coffee shop	i'm robin	i'm robin
medium.en	busy coffee shop	i'm robin	i'm robin
tiny.en	busy coffee shop	i'm robin	i'm robin

model	set	expected	result
small.en	busy coffee shop	i'm robin	i'm robin
medium.en	busy coffee shop	i'm robin	i'm robin
tiny.en	busy coffee shop	i'm robin	i'm robin
small.en	busy coffee shop	i'm robin	i'm robin
medium.en	busy coffee shop	i'm robin	i'm robin
tiny.en	busy coffee shop	i'm robin	i'm robin
small.en	busy coffee shop	i'm robin	i'm robin
medium.en	busy coffee shop	i'm robin	i'm robin
tiny.en	busy coffee shop	it's finn	it's been
small.en	busy coffee shop	it's finn	it's fin
medium.en	busy coffee shop	it's finn	it's finn
tiny.en	busy coffee shop	it's finn	it's been
small.en	busy coffee shop	it's finn	it's finn
medium.en	busy coffee shop	it's finn	it's finn
tiny.en	busy coffee shop	it's finn	it's fun
small.en	busy coffee shop	it's finn	it's finn
medium.en	busy coffee shop	it's finn	it's fin
tiny.en	busy coffee shop	it's finn	it's finn
small.en	busy coffee shop	it's finn	it's finn
medium.en	busy coffee shop	it's finn	it's finn
tiny.en	busy coffee shop	it's finn	it's fun
small.en	busy coffee shop	it's finn	it's fin
medium.en	busy coffee shop	it's finn	it's finn
tiny.en	busy coffee shop	it's me, mason	it's me, mason
small.en	busy coffee shop	it's me, mason	it's me, mason
medium.en	busy coffee shop	it's me, mason	it's me, mason
tiny.en	busy coffee shop	it's me, mason	it's me, mason
small.en	busy coffee shop	it's me, mason	it's me, mason
medium.en	busy coffee shop	it's me, mason	it's me, mason
tiny.en	busy coffee shop	it's me, mason	it's me mason
small.en	busy coffee shop	it's me, mason	it's me, mason
medium.en	busy coffee shop	it's me, mason	it's me, mason
tiny.en	busy coffee shop	it's me, mason	it's me mason
small.en	busy coffee shop	it's me, mason	it's me, mason
medium.en	busy coffee shop	it's me, mason	it's me, mason
tiny.en	busy coffee shop	it's me, mason	it's me mason
small.en	busy coffee shop	it's me, mason	it's me, mason

model	set	expected	result
medium.en	busy coffee shop	it's me, mason	it's me, mason
tiny.en	busy coffee shop	jane	jane
small.en	busy coffee shop	jane	jane
medium.en	busy coffee shop	jane	jane
tiny.en	busy coffee shop	jane	jane
small.en	busy coffee shop	jane	jane
medium.en	busy coffee shop	jane	jane
tiny.en	busy coffee shop	jane	jane
small.en	busy coffee shop	jane	jane
medium.en	busy coffee shop	jane	jane
tiny.en	busy coffee shop	jane	jane
small.en	busy coffee shop	jane	jane
medium.en	busy coffee shop	jane	jane
tiny.en	busy coffee shop	jane	jane
small.en	busy coffee shop	jane	jane
medium.en	busy coffee shop	jane	jane
tiny.en	busy coffee shop	jane	jane
small.en	busy coffee shop	jane	jane
medium.en	busy coffee shop	jane	jane
tiny.en	busy coffee shop	milk	milk
small.en	busy coffee shop	milk	milk
medium.en	busy coffee shop	milk	milk
tiny.en	busy coffee shop	milk	milk
small.en	busy coffee shop	milk	milk
medium.en	busy coffee shop	milk	milk
tiny.en	busy coffee shop	milk	milk
small.en	busy coffee shop	milk	milk
medium.en	busy coffee shop	milk	milk
tiny.en	busy coffee shop	milk	milk
small.en	busy coffee shop	milk	milk
medium.en	busy coffee shop	milk	milk
tiny.en	busy coffee shop	milk	milk
small.en	busy coffee shop	milk	milk
medium.en	busy coffee shop	milk	milk
tiny.en	busy coffee shop	my favourite drink is iced tea	my favourite drink is iced tea
small.en	busy coffee shop	my favourite drink is iced tea	my favourite drink is iced tea
medium.en	busy coffee shop	my favourite drink is iced tea	my favourite drink is iced tea

model	set	expected	result
tiny.en	busy coffee shop	my favourite drink is iced tea	my favourite drink is iced tea
small.en	busy coffee shop	my favourite drink is iced tea	my favourite drink is iced tea
medium.en	busy coffee shop	my favourite drink is iced tea	my favourite drink is iced tea
tiny.en	busy coffee shop	my favourite drink is iced tea	my favourite drink is iced tea
small.en	busy coffee shop	my favourite drink is iced tea	my favourite drink is iced tea
medium.en	busy coffee shop	my favourite drink is iced tea	my favourite drink is iced tea
tiny.en	busy coffee shop	my favourite drink is iced tea	my favourite drink is iced tea
small.en	busy coffee shop	my favourite drink is iced tea	my favourite drink is iced tea
medium.en	busy coffee shop	my favourite drink is iced tea	my favourite drink is iced tea
tiny.en	busy coffee shop	my favourite drink is iced tea	my favourite drink is iced tea
small.en	busy coffee shop	my favourite drink is iced tea	my favourite drink is iced tea
medium.en	busy coffee shop	my favourite drink is iced tea	my favourite drink is iced tea
tiny.en	busy coffee shop	my name is charlie	my name is charlie
small.en	busy coffee shop	my name is charlie	my name is charlie
medium.en	busy coffee shop	my name is charlie	my name is charlie
tiny.en	busy coffee shop	my name is charlie	my name is tani
small.en	busy coffee shop	my name is charlie	my name is charlie
medium.en	busy coffee shop	my name is charlie	my name is charlie
tiny.en	busy coffee shop	my name is charlie	my name is charlie
small.en	busy coffee shop	my name is charlie	my name is charlie
medium.en	busy coffee shop	my name is charlie	my name is charlie
tiny.en	busy coffee shop	my name is charlie	my name is charlie
small.en	busy coffee shop	my name is charlie	my name is charlie
medium.en	busy coffee shop	my name is charlie	my name is charlie

model	set	expected	result
tiny.en	busy coffee shop	orange juice	orange juice
small.en	busy coffee shop	orange juice	orange juice
medium.en	busy coffee shop	orange juice	orange juice
tiny.en	busy coffee shop	orange juice	orange juice
small.en	busy coffee shop	orange juice	orange juice
medium.en	busy coffee shop	orange juice	orange juice
tiny.en	busy coffee shop	orange juice	orange juice
small.en	busy coffee shop	orange juice	orange juice
medium.en	busy coffee shop	orange juice	orange juice
tiny.en	busy coffee shop	orange juice	orange juice
small.en	busy coffee shop	orange juice	orange juice
medium.en	busy coffee shop	orange juice	orange juice
tiny.en	busy coffee shop	orange juice	orange juice
small.en	busy coffee shop	orange juice	orange juice
medium.en	busy coffee shop	orange juice	orange juice
tiny.en	busy coffee shop	tropical juice	tropical juice
small.en	busy coffee shop	tropical juice	tropical juice
medium.en	busy coffee shop	tropical juice	tropical juice
tiny.en	busy coffee shop	tropical juice	trump goodness
small.en	busy coffee shop	tropical juice	tropical juice
medium.en	busy coffee shop	tropical juice	tropical juice
tiny.en	busy coffee shop	tropical juice	tropical juice
small.en	busy coffee shop	tropical juice	tropical juice
medium.en	busy coffee shop	tropical juice	tropical juice
tiny.en	busy coffee shop	tropical juice	tropical juice
small.en	busy coffee shop	tropical juice	tropical juice
medium.en	busy coffee shop	tropical juice	tropical juice
tiny.en	busy coffee shop	tropical juice	trump could just..
small.en	busy coffee shop	tropical juice	tropical juice
medium.en	busy coffee shop	tropical juice	tropical juice
tiny.en	untrained phrases	i like to drink hot chocolate	i like to drink hot chocolate
small.en	untrained phrases	i like to drink hot chocolate	i like to drink hot chocolate
medium.en	untrained phrases	i like to drink hot chocolate	i like to drink hot chocolate
tiny.en	untrained phrases	i like to drink hot chocolate	i like to drink hot chocolate
small.en	untrained phrases	i like to drink hot chocolate	i like to drink hot chocolate
medium.en	untrained phrases	i like to drink hot chocolate	i like to drink hot chocolate
tiny.en	untrained phrases	i like to drink hot chocolate	i like to drink hot chocolate

model	set	expected	result
small.en	untrained phrases	i like to drink hot chocolate	i like to drink hot chocolate
medium.en	untrained phrases	i like to drink hot chocolate	i like to drink hot chocolate
tiny.en	untrained phrases	i'm izzy	i'm izzy
small.en	untrained phrases	i'm izzy	i'm izzy
medium.en	untrained phrases	i'm izzy	i'm izzy
tiny.en	untrained phrases	i'm izzy	i'm izzy
small.en	untrained phrases	i'm izzy	i'm izzy
medium.en	untrained phrases	i'm izzy	i'm izzy
tiny.en	untrained phrases	i'm izzy	i'm izzy
small.en	untrained phrases	i'm izzy	i'm izzy
medium.en	untrained phrases	i'm izzy	i'm izzy
tiny.en	untrained phrases	my favourite drink is lemonade	my favourite drink is lemonade
small.en	untrained phrases	my favourite drink is lemonade	my favourite drink is lemonade
medium.en	untrained phrases	my favourite drink is lemonade	my favourite drink is lemonade
tiny.en	untrained phrases	my favourite drink is lemonade	my favourite drink is lemonade
small.en	untrained phrases	my favourite drink is lemonade	my favourite drink is lemonade
medium.en	untrained phrases	my favourite drink is lemonade	my favourite drink is lemonade
tiny.en	untrained phrases	my favourite drink is lemonade	my favourite drink is laminade
small.en	untrained phrases	my favourite drink is lemonade	my favourite drink is lemonade
medium.en	untrained phrases	my favourite drink is lemonade	my favourite drink is lemonade
tiny.en	untrained phrases	my name is adam	my name is adam
small.en	untrained phrases	my name is adam	my name is adam
medium.en	untrained phrases	my name is adam	my name is adam
tiny.en	untrained phrases	my name is adam	my name is adam
small.en	untrained phrases	my name is adam	my name is adam
medium.en	untrained phrases	my name is adam	my name is adam
tiny.en	untrained phrases	my name is adam	my name is adam
small.en	untrained phrases	my name is adam	my name is adam
medium.en	untrained phrases	my name is adam	my name is adam

Table 4: RASA Parse Results

input	intent	confidence	entity value
Tropical juice	favourite_drink	1	Tropical juice
I'm Robin	person_name	1	Robin
Trump could just...	favourite_drink	0.9999998807907104	just
tropical juice	favourite_drink	1	Tropical juice
I like to drink colour.	favourite_drink	1	colour
Orange juice	favourite_drink	1	Orange juice
My favourite drink is lemonade.	favourite_drink	0.9999998807907104	lemonade
I like to drink hot chocolate.	favourite_drink	1	chocolate
My name is Charlie	person_name	1	Charlie
It's me, Mason.	person_name	1	Mason
My name is Tani.	person_name	1	Tani
Jane	person_name	1	Jane
orange juice	favourite_drink	1	Orange juice
My name is Adam.	person_name	1	Adam
My favourite drink is iced tea.	favourite_drink	1	Iced tea
My favorite drink is iced tea.	favourite_drink	1	Iced tea
My name is Chali.	person_name	1	Chali
I like to drink color.	favourite_drink	1	color
My name is Charlie.	person_name	1	Charlie
It's been.	person_name	1	been
I'm Izzy.	person_name	1	Izzy
I like to drink cola.	favourite_drink	1	cola
Drop good juice.	favourite_drink	1	Drop
Drop good juice	favourite_drink	1	Drop
Milk	favourite_drink	1	Milk
milk	favourite_drink	1	Milk
My name is Toni.	person_name	1	Toni
My name is Chani.	person_name	1	Chani
Trump goodness	person_name	0.9950299263000488	goodness
It's fun.	person_name	1	fun
It's me Mason.	person_name	1	Mason
It's Finn.	person_name	1	Finn
Jane?	person_name	1	Jane
Jane.	person_name	1	Jane
Orange juice.	favourite_drink	1	Orange juice
It's me Mason	person_name	1	Mason

input	intent	confidence	entity value
Tropical juice.	favourite_drink	1	Tropical juice
My favorite drink is lemonade.	favourite_drink	0.9999874830245972	lemonade
Orange Juice.	favourite_drink	1	Orange juice
Orange Juice	favourite_drink	1	Orange juice
My favorite drink is iced tea	favourite_drink	1	Iced tea
Tropical Juice	favourite_drink	1	Tropical juice
My favorite drink is laminate.	favourite_drink	0.9999998807907104	laminare
I like to drink Cola.	favourite_drink	1	cola
Milk.	favourite_drink	1	Milk
I'm Robin.	person_name	1	Robin
It's Fin.	person_name	1	Fin
It's been	person_name	1	been

Table 5: Person Description Results

expected torso	expected hair	has glasses?	has hat?
inferred torso	inferred hair	inferred glasses	inferred hat
black	black	true	false
black	midnight black	true	false
green	orange	true	false
teal	medium dark brown	false	false
navy	white	true	false
brown		true	false
white	black	false	false
		false	false
green	blonde	true	false
black	off black	true	false
green	brown	false	false
black	medium dark brown	false	false
white	gray	false	false
ivory	medium gray	false	false
gray	black	false	true
gray		true	true
black or white	black	true	false
brown	medium dark brown	false	false
orange	brown-ginger	false	false
teal	darkest gray	false	false
white	black	false	false
turquoise	off black	true	false
yellow	black	false	false
teal	off black	false	false
blue	black	false	false
brown	off black	false	true
black	black	false	false
black	medium dark brown	false	false
pink white	black brown	false	false
salmon	chestnut brown	false	false
white	black	true	false
gray	off black	true	false
orange	black	true	false
teal	strong dark brown	true	false
dark blue	brown	true	false

expected torso	expected hair	has glasses?	has hat?
inferred torso	inferred hair	inferred glasses	inferred hat
black	medium dark brown	true	false
white	black	true	false
tan	off black	true	false
black	black	false	false
black	off black	false	false
blue	black	false	false
brown		true	false
black	blonde	false	false
black	light golden brown	false	false
white	brown-black	false	false
tan	darkest gray	false	false
gray	black	false	false
gray	midnight black	false	false
black	brown	false	false
black	medium dark brown	false	false
blue	black-brown	true	false
chocolate	midnight black	false	false
white	black-red-highlights	false	false
platinum	off black	false	true
blue	brown-tint-red	true	false
tan		true	false
blue-gray-white	black	true	false
brown		true	false
gray	black	false	false
gray		false	true

References