VERSION 1.0



Human-Robot Interaction

NAO Documentation / User Manual

CREATED BY Casey Chen, Hailey Dhanens, Matthew Harker, Angie Quach, & Derek Vaughan

Arigato, central washington university

Ellensburg, wa

“Our mission is to create and showcase meaningful and exciting human-to-robot interaction using the Aldebaran NAO robots recently required by CWU.” – AriGato Robotics

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# CONTENTS

Section 1: Introduction to the NAO Robot

1.1 What is NAO?............................................................................................................................X

1.2 Who made NAO?......................................................................................................................X

1.3 Definitions, Acronyms, & Abbreviations….……………………………………………………………………………X

1.4 References……………………………………………………………………………………………………………………………X

Section 2: NAO’s Capabilities

2.1 Initial (Pre-Built) Capabilities....................................................................................................X

2.2 Verbal Responses (Q&A)……………………………............................................................................X

2.3 Internet-Based Requests & Responses…………………………………………………………………………………X

2.4 Facial Detection & Recognition Responses…………………………………………………………………………..X

2.5 Basic Movement Options……………..………………..……………………………………………………………………X

2.6 Advanced Movement Options………………………..……………………………………………………………………X

Section 3: Creating Your Own NAO Modules

3.1 Basics of Choregraphe…………………...........................................................................................X

3.2 Using the NAOqi Framework....................................................................................................X

3.3 Creating Your First Module………………….….……………………………………………………………………………X

3.4 Integrating Your Module onto NAO………………………………………………………………………………………X

Section 4: Help

4.1 General FAQs……………………………….………………………………………………………………………………………X

4.2 Troubleshooting…………………………………………………………………………………………………………………..X

# SECTION 1: INTRODUCTION TO THE NAO ROBOT

## 1.1 WHAT IS NAO?

## 1.2 WHo made NAO?

## 1.3 definitions, acronyms, & abbreviations

## 1.4 references

# SECTION 2: NAO’s CAPABILITIES

## 2.1 initial (pre-built) capabilities

The original capabilities of the NAO are put on the robot by subscribing to the Aldebaran “Basic Channel.” Official documentation on this channel lists and describes its capabilities.[[1]](#footnote-1) Below is a list of some of the phrases NAO can respond to in the documentation, most of which are available in English, French, and Japanese Language settings.

* “How are you?”
* “Can you say goodbye?”
* “What can you do?”
* “Tell me all you can do.”
* “How do I install an application?”
* “How do I start an application?”
* “What did I say?”
* “Can you repeat please?”
* “What is your IP address?”
* “Are you connected to Internet?”
* “What languages so you speak?
* “Speak French.”
* “Can you speak French?”
* “Speak Japanese.”
* “Speak Chinese”
* “Can you speak Chinese”
* “Speak softer”
* “Speak louder”
* “Can you stand up?”
* “Can you sit down?”
* “Crouch.”
* “Lay down”
* “Lift your arm”
* “Lay down on your back”
* “Lay down on your belly.”
* “Stop Looking at me”
* “What is your name?”
* “Introduce yourself”
* “How are you?”
* “How tall are you?”
* “How much do you weigh?”

## 2.2 verbal responses (q&a)

Developers

Verbal queues:

* Who is developing your programs?
* Who is working on you?
* Who is in the capstone project?

Description: Nao lists the team members of the Arigato capstone project

How old are you

Verbal queues:

* How old are you?
* What is your age?

Description: Nao will respond with various humorous verbal responses

Sing the anthem

Verbal queues:

Description:

What time is it?

Verbal queues:

Description:

## 2.3 internet-based requests & responses

*Movie Information*

Verbal queues:

Description:

*Temperature*

Verbal queues:

* What is the current temperature of Ellensburg?
* What’s the current temperature?
* What is the temperature?
* How hot is it outside?
* How cold is it outside?
* How hot is it?
* How cold is it?

Description: Nao will retrieve weather information from OpenWeatherMap.com and give the current temperature in Ellensburg Washington. Because this module was only intended for use in Ellensburg, if one wants to change the city, they will have to go into the code and do it manually.

## 2.4 facial detection & recognition responses

*Age Guesser*

Verbal queues:

* Can you guess how old I am?
* Guess my age.
* How old do you think I am?
* What is my age?

Description: When prompted, NAO will use the facial recognition API to attempt a guess at the user’s age.

*Do you know me?*

Verbal queues:

* Do you know me?
* Do you remember me?
* Do you know my name?
* Do you know who I am?

Description: If a recognized face is within view, if NAO can recognize the face within 6 seconds, NAO will greet the person, if not, the module will time out, and NAO will say “sorry, I do not recognize you”

## 2.5 basic movement options

*Jazz Hands*

Verbal queues:

* Jazz hands
* Do jazz hands
* Be jazzy
* Can you do jazz hands?

Description: NAO will perform jazz hands when prompted

*Move Fingers*

Verbal queues:

* NAO, wiggle your fingers
* Move fingers
* Can you wiggle your fingers
* Do your fingers move
* Move your fingers

Description: NAO will open and close his hands to demonstrate the mobility of his fingers.

*Nod Yes*

Verbal queues:

* Nod yes
* Can you nod for me?
* Nod your head
* Nod your head for me

Description: Nao will move his head up and down to demonstrate the mobility of his head

*Raise Left/Right foot*

Verbal queues:

* Raise your left/right foot
* Move your left/right foot

Description: Nao will lean to the side and lift the corresponding foot in order to demonstrate the mobility of his feet.

*Turn head left/right*

Verbal queues:

* Turn your head left/right
* Tur head left/right
* Head left/right
* Move your head to the left/right
* Look left/right

Description: NAO will turn his head to the corresponding direction in order to demonstrate the mobility of his head

*Walk backward/forward/left/right*

Verbal queues:

* Walk <direction>
* Move <direction>
* Step <direction>
* Take a step <direction>

Description: NAO will move 0.2 meters in the desired direction

## 2.6 advanced movement options

*Pushups*

Verbal queues:

* Pushups
* Do pushups
* Do some pushups
* Can you do pushups?
* Do you know how to do pushups?

Description: NAO will ask how many pushups you would like done (he can do 1 to 10 inclusive) and will proceed to do that many pushups

\*\*\*WARNING\*\*\*

NAO must have clear and empty space behind and in front of him to do pushups, and making NAO do excessive pushups without a break can lead to overheating motors

# SECTION 3: CREATING YOUR OWN NAO MODULES

## 3.1 basics of choregraphe

## 3.2 using the naoqi framework

## 3.3 creating your first module

## 3.4 integrating your module onto nao

# SECTION 4: HELP

## 4.1 general faqs

## 4.2 troubleshooting

1. http://doc.aldebaran.com/2-1/nao/basic\_channel\_conversation.html [↑](#footnote-ref-1)