

RoboCup@Home Education

ONLINE CHALLENGE 2020

Online Classroom Open Platform

03 Robot Speech Interaction (1/2) : Speech Synthesis

Jeffrey Tan, Jupiter Robot | 2020.04.30

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Online Challenge 2020: Online Classroom OP

03 Robot Speech Interaction (1/2) : Speech Synthesis

Speakers: Jeffrey Tan, Jupiter Robot

Time: **Apr 30, 2020 (Thu) 10:00 - 11:00 am (GMT+8)**

03 Robot Speech Interaction (2/2) : Speech Recognition

Speakers: Jeffrey Tan, Jupiter Robot

Time: **Apr 30, 2020 (Thu) 11:00 - 12:00 noon (GMT+8)**

Zoom: <https://cernet.zoom.com.cn/j/63662912847> | PW: robocup

Facebook Live: <https://www.facebook.com/robocupathomeedu/live/>

Web:
<https://www.robocupathomeedu.org/challenges/robocuphome-education-online-challenge-2020>

Online Classroom:
<https://www.robocupathomeedu.org/learn/online-classroom/online-challenge-2020>

** Privacy reminder: Video will be recorded and published online.

Previous Assignments / Prerequisites

1. Write a pair of ROS **Publisher** and **Subscriber** Nodes
 - In every second, the publisher node publishes user name and counter to a topic.
 - The subscriber node subscribes the topic and display the topic messages on terminal.
2. Upload to GitHub
 - Create own repository and upload the source code and results (terminal screenshots) to GitHub.

Speech Interaction Development System

Hardware

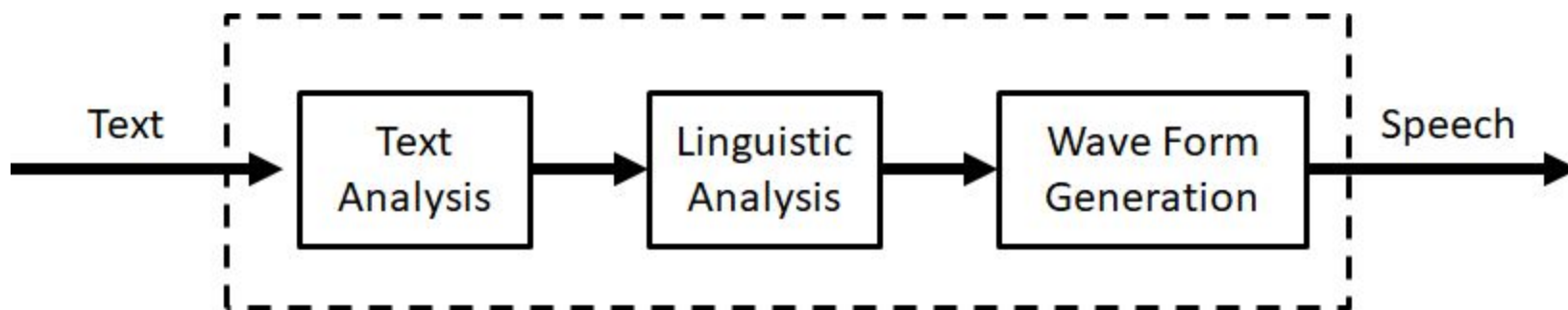
- Speaker & Microphone
- Laptop computer

Software

- Ubuntu
- ROS
- Related component software

Speech Synthesis (Text-to-Speech)

- Speech synthesis is the production of artificial human speech by a computer or other machines.
- Also known as a text-to-speech (TTS) system, where normal language text is converted into speech.



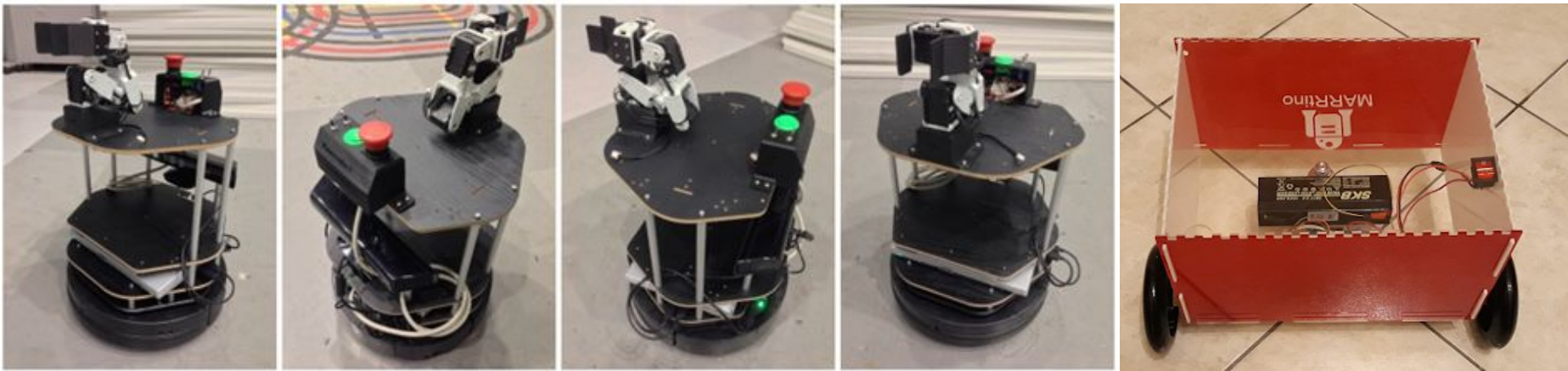
Speech Synthesis (Text-to-Speech) [offline]

- Festival - <http://www.cstr.ed.ac.uk/projects/festival/>
- ROS sound_play - http://wiki.ros.org/sound_play
 - Tutorials - http://wiki.ros.org/sound_play/Tutorials
- Installation
 - `$ sudo apt-get install ros-kinetic-audio-common`
 - `$ sudo apt-get install libasound2`
- Command line operation
 - `$ roscore`
 - `$ rosrunc sound_play soundplay_node.py`
 - `$ rosrunc sound_play say.py "Hello!"`
- Source code implementation
 - `rchomeedu_speech/scripts/sound_test.py`
 - `$ roslaunch rchomeedu_speech sound_test.launch`

Speech Synthesis (Text-to-Speech) [offline]

Festival Add Voices

- Reference - <https://ubuntuforums.org/showthread.php?t=751169>
- Install by Debs
 - `$ sudo apt-get install festvox-don festvox-kdlpc16k festvox-rablpc16k`
 - Voice files location `/usr/share/festival/voices/english/`
- Install by Voice Files
 - Download voice files
 - http://www.speech.cs.cmu.edu/cmu_arctic/packed/
 - <http://festvox.org/packed/festival/2.4/voices/>
 - Extract files and put in `/usr/share/festival/voices/us/`
 - Arctic voices add “_clunits” at the end of the folder name
 - Female voices: `cmu_us_axb_cg`, `cmu_us_clb_cg`, `cmu_us_clb_arctic_clunits`, `cmu_us_slt_arctic_clunits`
- Command line operation
 - `$ roscore`
 - `$ rosrn sound_play soundplay_node.py`
 - `$ rosrn sound_play say.py "Hello!" voice_<voice name>` (e.g. `voice_don_diphone`)



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Online Classroom: <https://www.robocupathomeedu.org/learn/online-classroom/online-challenge-2020>

Online Entry Form: <https://forms.gle/UBREeC1xTCVQ9wr78>

Online Entry Form (backup): <https://www.wjx.cn/jq/72082120.aspx>

Contact: oc@robocupathomeedu.org

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