Pilot #1: Animation tutorial for deaf students (Lip synching)

A guide & research by Jon Mortimer

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Pilot tutorial: Lip synching

TASK: A methodology for deaf students to animate a character to lip sync with a given sound file.

- Expanding upon my research and support I have previously offered one of my students; whom was from the British deaf community, while she studied her Digital Media degree at Edinburgh Napier University.

*Please note. This is a proposed methodology that has only be tested on a single student and is subject to review for different student capabilities.

Overview of task

Using the provided materials, students are tasked with animating a short 10 second sequence of a character lip synching to a voice-over.

- **Use any software you wish**, for the purposes of a demonstrate sample, I will be referring to Autodesk 3ds Max [introductory notes for 3ds Max will also be provided for consideration & further study]
- **10 seconds of animation x 25 fps = 250 frames on timeline.**
- Review reference videos (ideally also use a mirror or mobile phone camera) to analyse mouth shapes, mannerisms & secondary animation.

What has been provided

In this tutorial, I have provided the following materials and recommendations on where to download resources (free or other);

1. Materials provided: audio file, video reference & script [guide]

2. Recommendation for Character rig/s from:

   a. https://www.11secondclub.com/resources

   b. Or the Jackie Rig from https://www.animdojo.com/ [sign up required]

Length of time on task?

I usually give this as a one day challenge (6-8 hours) to students, and encourage them to get feedback after this timeframe. This can be repeated as a feedback loop for improvement.

- Either aim to complete the task in one sitting of 6-8 hours.

- Or, break it up into 2 hour blocks each day.

Lip synching:
Introduction to Autodesk 3ds Max
(Use any software)

Introduction to 3ds Max

Quick links to get started using Autodesk 3ds Max. Best method; jump in, experiment, have a goal & have fun.

I would recommend anyone new to 3DS Max/ 3D software please watch the introductory video provided. You are welcome to watch any additional support materials from YouTube, any other sources or speak to Jon.

- Introductory video of 3DS Max [15:29] https://www.youtube.com/watch?v=0lZq9AP9aRA&t=16s
- Autodesk 3ds Max Learning Channel https://www.youtube.com/user/3dsMaxHowTos
- Autodesk Education Community (Free student downloads) https://www.autodesk.com/education/free-software/3ds-max

Lip synching:
Audio file

1. Chosen audio file
2. Reference video link
3. Script
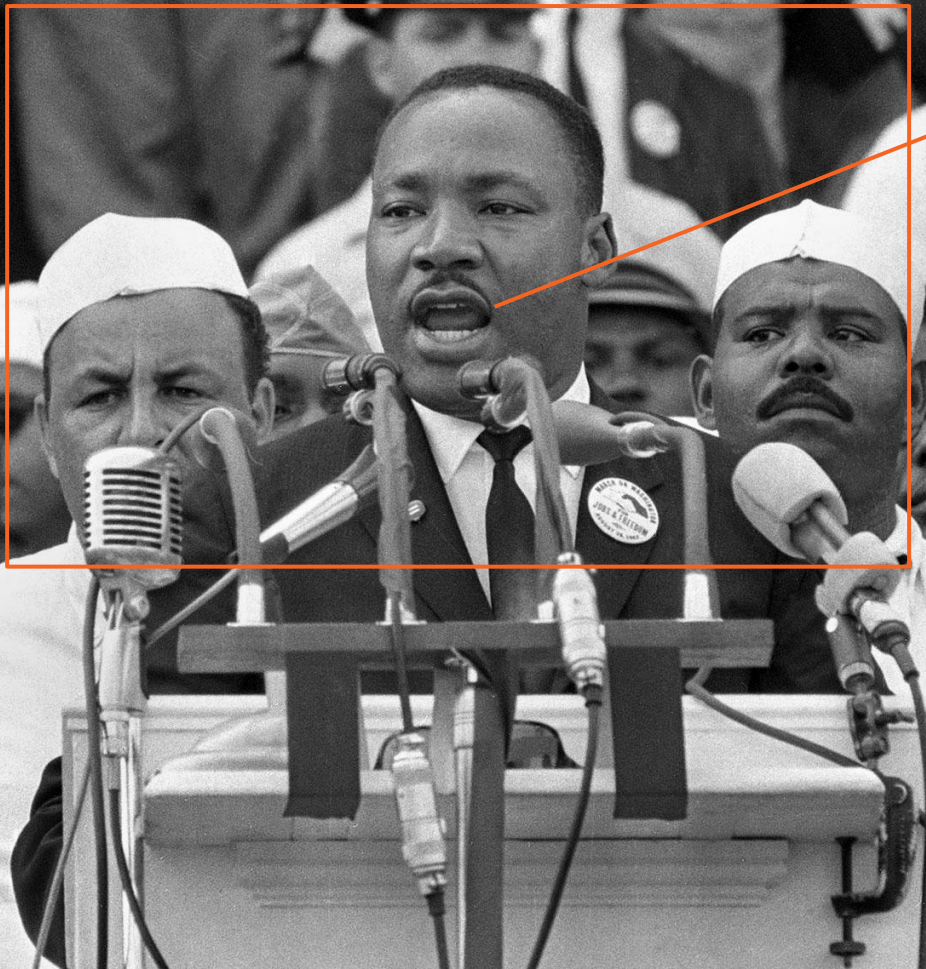
1. Chosen audio file

For the this task, I have chosen:

Martin Luther King Jr. **"I have a dream"** speech, August 28, 1963.

- Speech available via YouTube
- **Pick 10 seconds** from a 17:37 long speech.

2. Reference video

- Reference is vital for creating good animation. But you still need to add a little bit of yourself to make it special.

YouTube link: "I have a Dream" Martin Luther King Jr. Full Speech with Subtitle [17:37]

https://www.youtube.com/watch?v=_yOBncaiito

'I Have a Dream . . .'

Peroration by Dr. King Sums Up A Day the Capital Will Remember

By JAMES RESTON
Special to The New York Times

WASHINGTON, Aug. 28—Abraham Lincoln, who presided in his stone temple today above the children of the slaves he emancipated, may have used just the right words to sum up the general reaction to the Negro's massive march on Washington. "I think," he wrote to Gov. Andrew G. Curtin of Pennsylvania in 1861, "the necessity of being ready increases. Look to it." Wash-

News Analysis

American reformers. Roger Williams calling for religious liberty, Sam Adams calling for political liberty, old man Thoreau denouncing coercion, William Lloyd Garrison demanding emancipation, and Eugene V. Debs crying for economic equality—Dr. King echoed them all.

"I have a dream," he cried again and again. And each time the dream was a promise out of our ancient articles of faith: phrases from the Constitution,

3. Script

- Script of the speech has been provided below via Google docs.
- 5x page document - Century Gothic font was been chosen as a dysleixc friendly font.

https://docs.google.com/document/d/1vh1l1cSUpyWltSgGsvmohcQTUTLxGq_hAJQvF4gDfFY/edit?usp=sharing
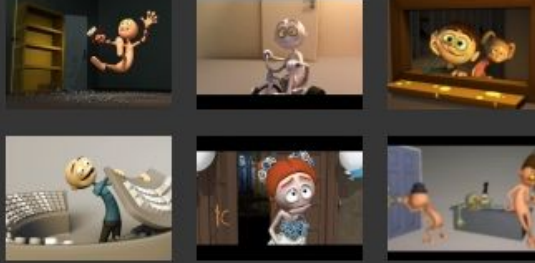
Lip synching:
Character rigs

1. 11 Second club free rigs
   - a). 3DS Max
   - b). Maya
2. AnimDojo 'Jackie' rig (Maya)
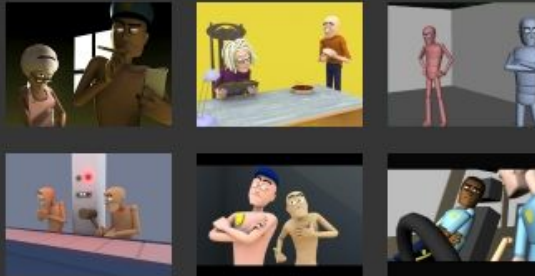
1. 11 Second club free rigs

- Great resource of free character rigs (3DS Max & Maya). Students are able to source their own.
- Recommend 'MAX' rig.
- https://www.11secondclub.com/resources

2. AnimDojo 'Jackie' rig (Maya)

- Option to sign up with AnimDojo for additional training & resources, which the 'Jackie' rig is available.
- https://www.animdojo.com/

*For full transparency, at the time of writing, Jon Mortimer is employed by AnimDojo as the Educational consultant.

Simpler rigs - Plan B

It can be a daunting task to animate a character to talk. Especially when you have to animate the mouth, the eyes, the eye brows & the heads…

I have some simpler character rigs [please see below] that are just a mouth, restricting how much is needed to be animated. They do require you to model your own mouth morphs. Contact Jon for details.

Balloon head

Talking head
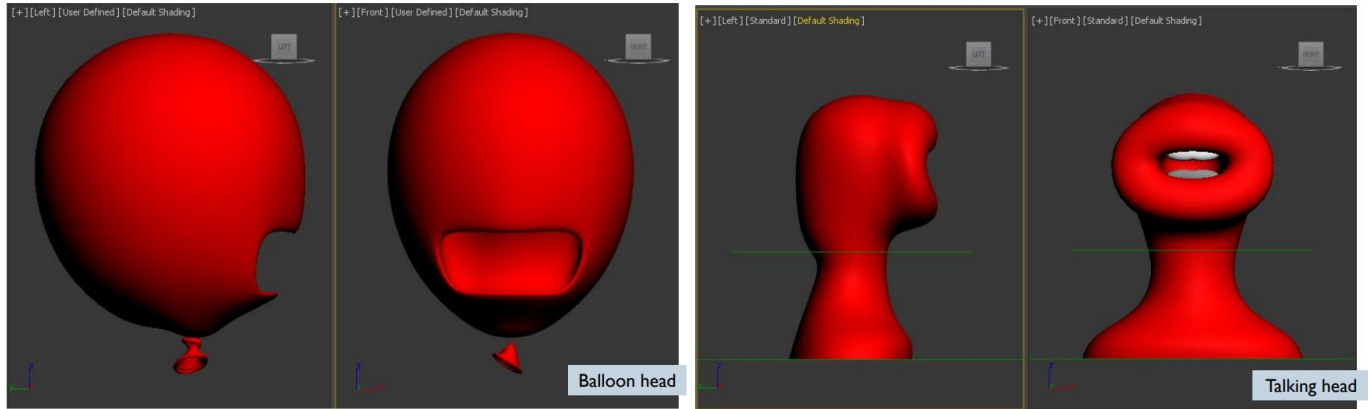
Lip synching:
Methodology

1. Audio waveform / keyframe
2. Keyframe before movement

Summary on Method

1). Keyframe at the peak of Waveform.

View the waveform in either 3ds max or Maya. Mark every peak in the wave with a key frame (to start with). Use the video reference of the person talking and the script. Review both of these to figure out the right mouth movement - if you have time this could be done more easily by storyboarding first taking note of times etc.

2). Movement before sound.

An important point, start animating the movement before you see the wave peak / hear the sound. It's a small detail that makes the difference.

Getting started

Watch video reference and select any 10 second segment of the speech. Take note of the time code and cut your chosen audio clip before taking it into 3ds Max/Maya.

- Remember to take note of the time code of your section - this is so you can review the closed caption option on the video & the script [guide].

- Only import the 10 second clip into 3ds Max - it makes blocking easier.

Identifying Mouth shapes

Review the provided reference video to identify the mouth shapes for your 10 second clip - you may want to also use a mirror or your mobile phone to better analyse and understand the mouth shapes.

- ***Difficult bit:** if recording yourself, try to be natural and use a natural pace. Sometimes the tendency is to talk too slow and over exaggerate, to get a better look at your own mouth shapes.
- Use the reference video as a guide and add a little of yourself.

History: Animators + mirrors
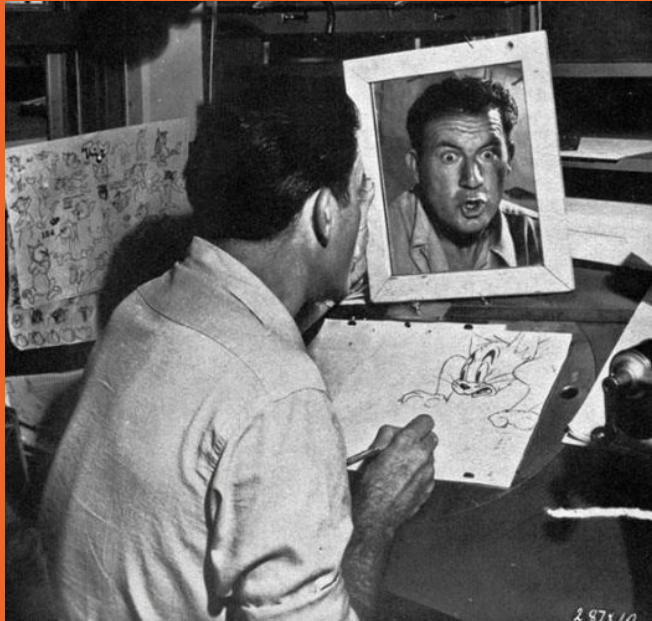
Using a Mirror to give their characters a more realistic expressions, is an age old trick used by animators & studio, such as Disney Studios. The animators would often use mirrors to recreate the characteristics of joy, fear, anger or surprise. Then exaggerate them further.

Today, we can use our mobile phones to capture short videos of our home performances.

Further reading...
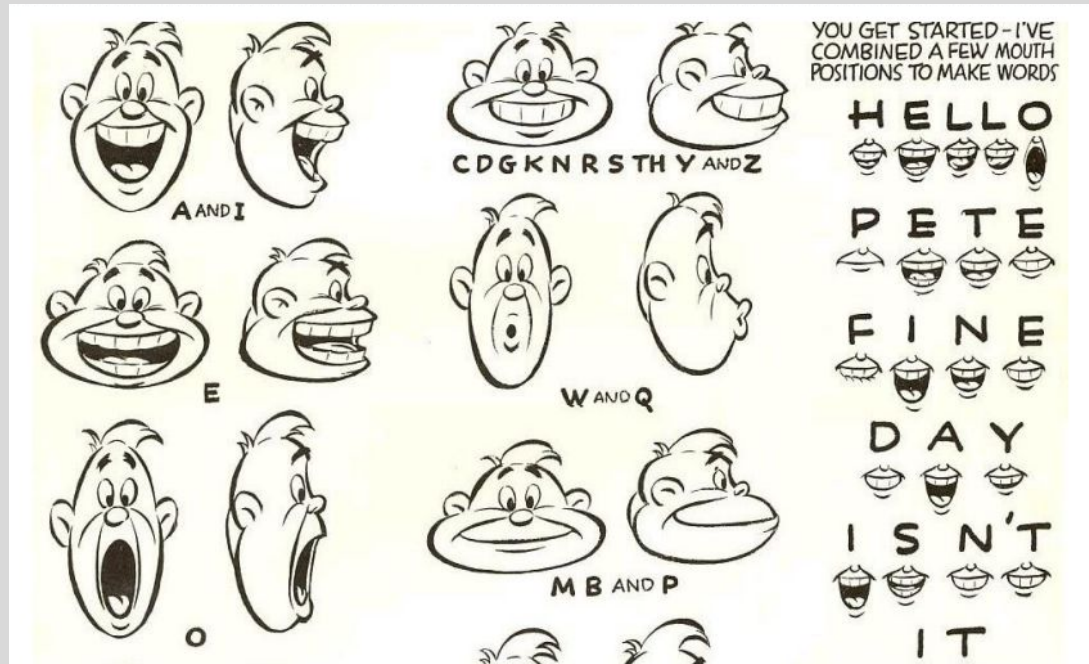
"The Animator's Survival kit" by Richard Williams, is a fantastic resource for character animation. Including lip synching, mouth shapes and notes on how to break down the action.

http://index-of.co.uk/Animation/The%20_Animator's_Survival_Kit.pdf

Editing the Audio

Edit/refine your audio before importing your audio file into 3ds Max

*If a student is having difficulty preparing the audio file, a pre-prepared audio file of the speech (10 seconds in length) can be supplied. The focus remains on the animation / lip-synching.

**Software suggestion for editing audio:**

1). **Adobe Premiere** - subscription required: www.adobe.com

2). **Audacity** - free download: https://www.audacityteam.org/download/

Audio waveform

Import your audio file into 3ds Max -
https://area.autodesk.com/tutorials/how-to-import-sound-in-3ds-max/

- Use the Curve editor (Graph Editor - Maya) to see waveform to help you animate. (see examples below)
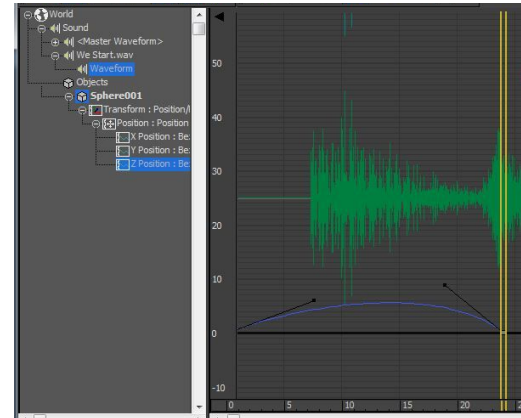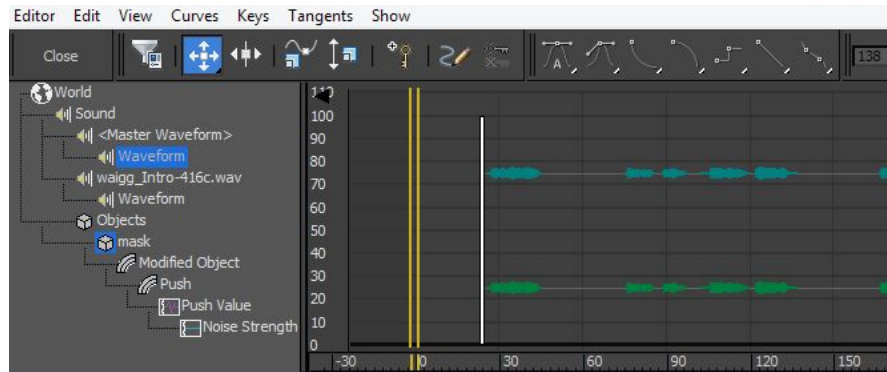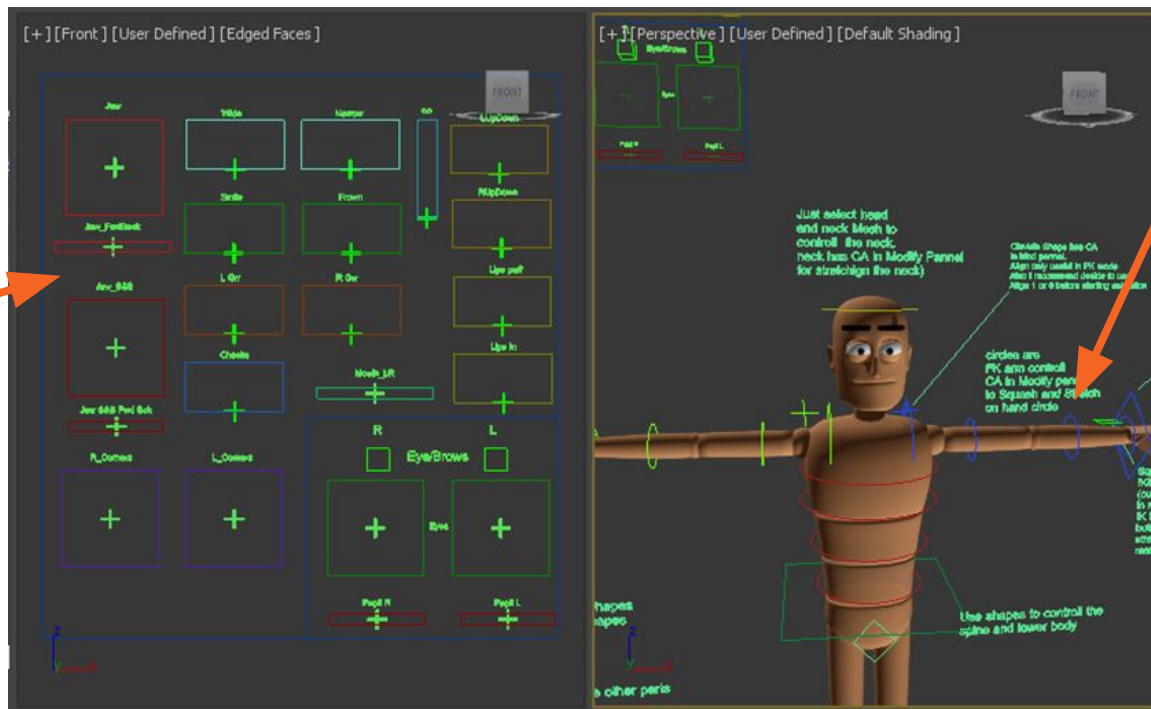
Animating 'MAX' rig

[LEFT]
These are the control (morph targets) for animating the face.

Try using 'Autokey' to add Keyframe for every controller you are using.

[RIGHT]
These are the controllers to manipulate the limbs.

Use a combination of the rotate & move tools to reposition limbs for strong key poses.

Movement before sound

The start of the movement comes before the sound, or in the case of this methodology, before the peak of the waveform [25 fps, 1-2 frames]

- **Be careful animating the upper lip!**

  *Try this at home: Put your index finger on your Philtrum / Cupid's bow and talk away - You should find the upper lip doesn't move that much unless stretched with the face or pushed by the bottom lip.

Animate in stages

Once you have your audio file imported into 3ds Max, animate your sequence in stages to make the process fun & manageable.

*Build it up over time.

- Block out your scene.
- Add in your keyframes first - movement before the sound / peak.
- Make sure to keyframe the whole face, not just the mouth. Complete performance.
- Secondary animation & movement.

Further reading...

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Look up Expression sheets from your favorite animated features for inspiration.

The example left is from animation company, LAIKA https://www.laika.com/ "ParaNorman" (2012)

Other examples could be found researching: Disney's "Tangled" (2010). Looking at the work of Glen Keane.

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FEEDBACK:

I would appreciate any and all feedback on this tutorial. Feedback is essential to improve upon any design- I want to make sure this is a useful resource for the deaf community.

I would also love to see your animation.

Email: j.mortimer@napier.ac.uk