

# tiny-trainable-instruments

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## About

Tiny Trainable Instruments is a collection of media arts instruments using tiny machine learning, and based on microcontrollers.

Tiny Trainable Instruments is the master's thesis of [Aarón Montoya-Moraga](#), a graduate student at [MIT Media Lab](#) and research assistant of the research groups [Opera of the Future](#) and [Future Sketches](#), during the academic years 2019-2021.

The advisor of this thesis project is [Tod Machover](#), and the thesis readers are [Zach Lieberman](#) and [Mitchel Resnick](#).

This thesis project features contributions by UROP undergrad researchers Peter Tone and Maxwell Wang.

## Structure

This repository contains the following folders and files:

- [assets/](#): graphic assets.
- [certification/](#): Markdown files, image files, and PDF files for complying with MIT's guidelines and certification for Use of Humans as Experimental Subjects.
- [databases/](#): databases for gesture and speech.
- [docs/](#): Markdown files, image files, and PDF files for documentation, including workshop materials.
- [notebooks/](#): Python Jupyter notebooks for processing databases and training models.
- [scripts/](#): shell scripts.
- [thesis/](#): Markdown files, image files, PDF files for thesis document.
- [TinyTrainable/](#): the Arduino software library built for this thesis. IT is included here as a submodule, and the most up-to-date version is on its own standalone repository at <https://github.com/montoyamoraga/TinyTrainable>.
- [.gitignore](#): Git file for ignoring.
- [.gitmodules](#): Git file for submodules.
- [.python-version](#): file for Python module pyenv.
- [LICENSE](#): text file with the license.
- [README.md](#): README file written in Markdown.
- [README.pdf](#): README exported to PDF.
- [requirements.txt](#): file to install all necessary Python modules.

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