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The 2nd AMT Workshop: Introduction

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The AMT Workshop: Aims and schedule

- What is the AMT and how can it be useful to you?
- General AMT structure and available tools
- AMT core functionality and coding conventions
- How to use the models
  - Choose a model
  - Set parameters
  - Process audio
  - Analyse the results
The AMT

- An open-source and open-access toolbox for auditory modeling
- A framework for developing new models by providing verified components
- A tool for performing scientific experiments with existing models
- An instrument to make a large number of models available in a common programming language
  - Core: Matlab/Octave; Supported: C, C++, Python; Extendable to any language*
- Development started in 2009, focus on sustainability
- Community work: Most of the models “donated” to the AMT

* but BrainFuck
Typical stages of auditory models

- Model ≠ Model implementation
- Models need data
- Model implementations often rely on toolboxes
- Many models use similar functionality
The AMT: General structure

- Model ≠ Model implementation
- Models need data
- Model implementations often rely on toolboxes
- Many models use similar functionality
The AMT: General structure

- Model ≠ Model implementation: published only, <surname><year>
- Models need data: auxiliary data
- Model implementations often rely on toolboxes: third-party toolboxes
- Many models use similar functionality: common functions
The AMT: Third-party toolboxes

- Large Time Frequency Analysis Toolbox (LTFAT)
- *Spatially Oriented Format for Acoustics (SOFA) Toolbox
- *Sound Field Synthesis (SFS) Toolbox
- *Circular Statistics (CircStat) Toolbox
- *Binaural Spherical Harmonics (BinSH) Toolbox

* optional
The AMT: Documentation, code, environment

- Documentation: [http://amtoolbox.org](http://amtoolbox.org)
  - In-code documentation (syntax: similar to reStructuredText)
  - Model list with ratings

- Getting the code:
  - For **working** with the AMT only: download the release package
  - For **developing** (with) the AMT: get the source code (Git on Sourceforge)

- Starting the AMT:
  - `amt_start('install');` or `amt_start;`
  - `amt_mex;`
  - `amt_stop;`

- Testing the environment:
  - Simple test: `demo_absolutethreshold`
  - C-compiler test: `demo_zilany2014`. Problems? → `amt_mex 'clean'; amo_mex`
  - SOFA/HRTFs test: `demo_baumgartner2014`
  - Python test: `demo_verhulst2012`. Problems? → `system('python -V')`
The AMT Workshop: Summary of the introduction

- Do you know what is the AMT?
- Do you know what are the general components of the AMT?
- Do you have a basic idea of what you can do with the AMT?
- Are you able to start the installation of the AMT?

- Cheat sheet: http://amtoolbox.org
  - Workshop slides online