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The 2nd AMT Workshop: Introduction

Paris, 17.5.2022



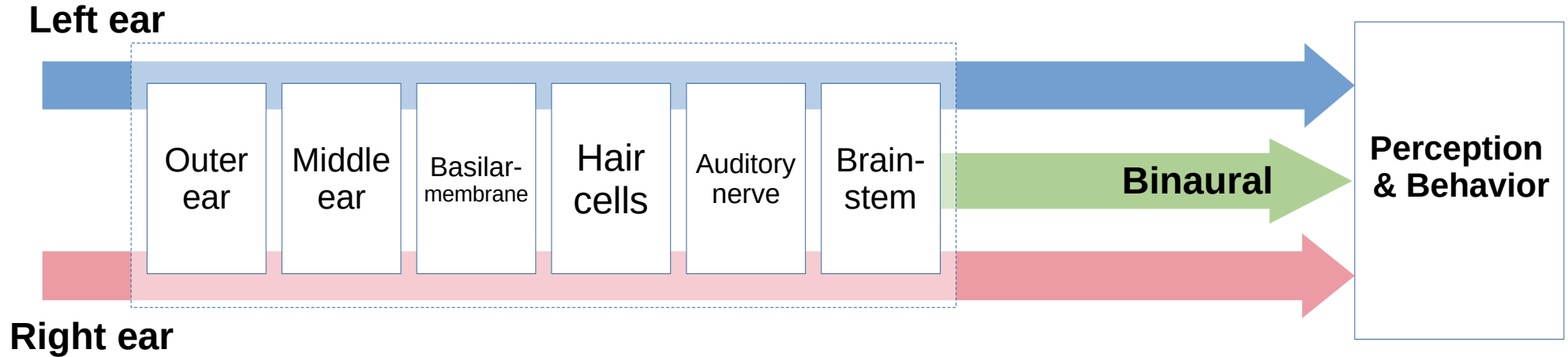
The AMT Workshop: Aims and schedule

- 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

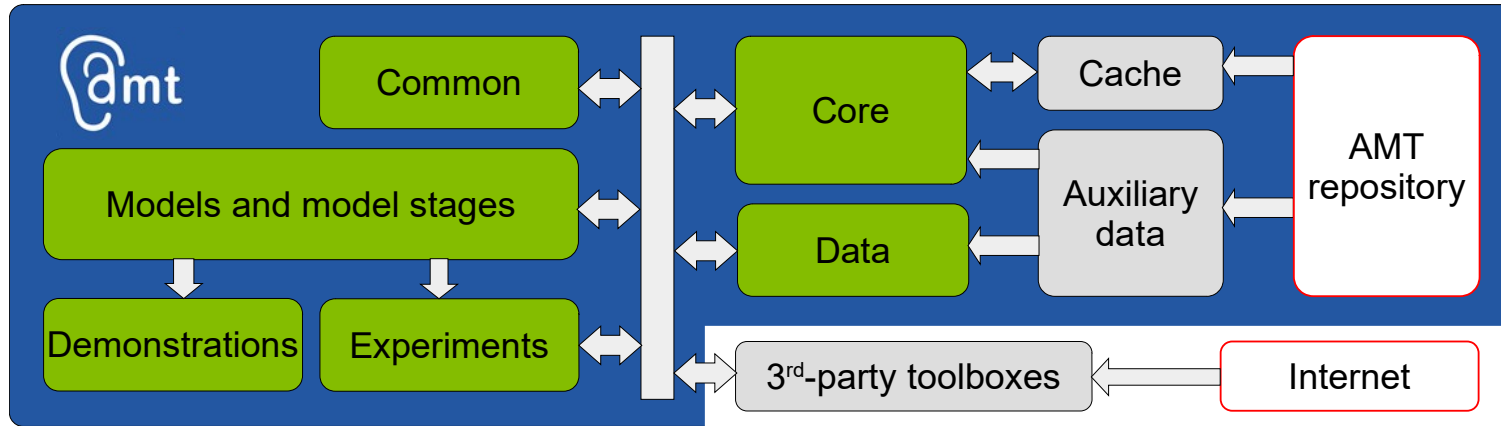
- An open-source and open-access toolbox for auditory modeling
- A framework for developing new models by providing verified components
- A tool for performing scientific experiments with existing models
- An instrument to make a large number of models available in a common programming language
 - Core: 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

Typical stages of auditory models



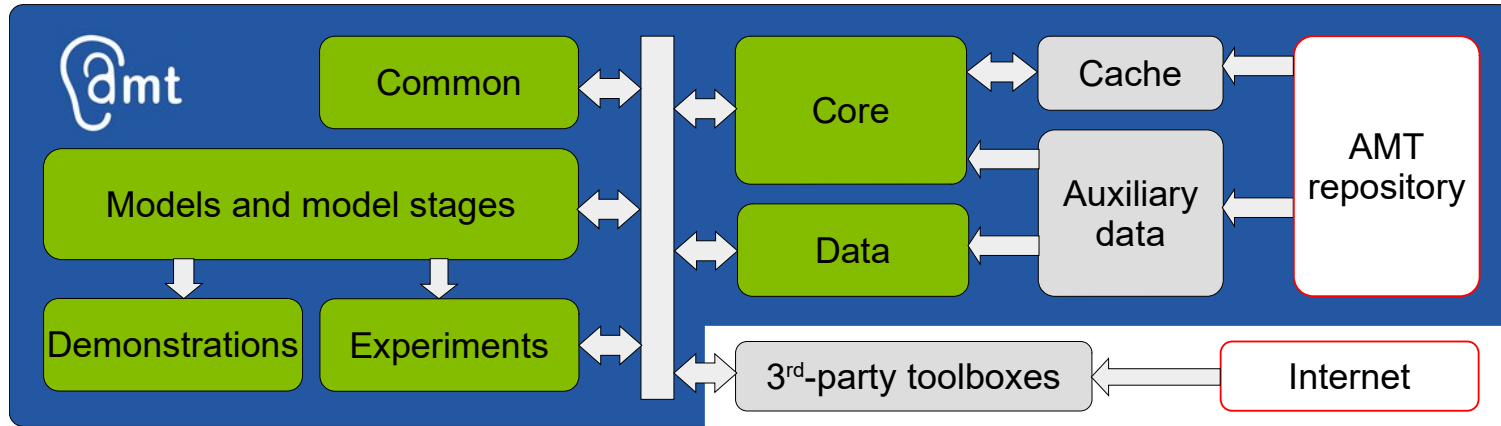
- Model \neq Model implementation
- Models need data
- Model implementations often rely on toolboxes
- Many models use similar functionality

The AMT: General structure



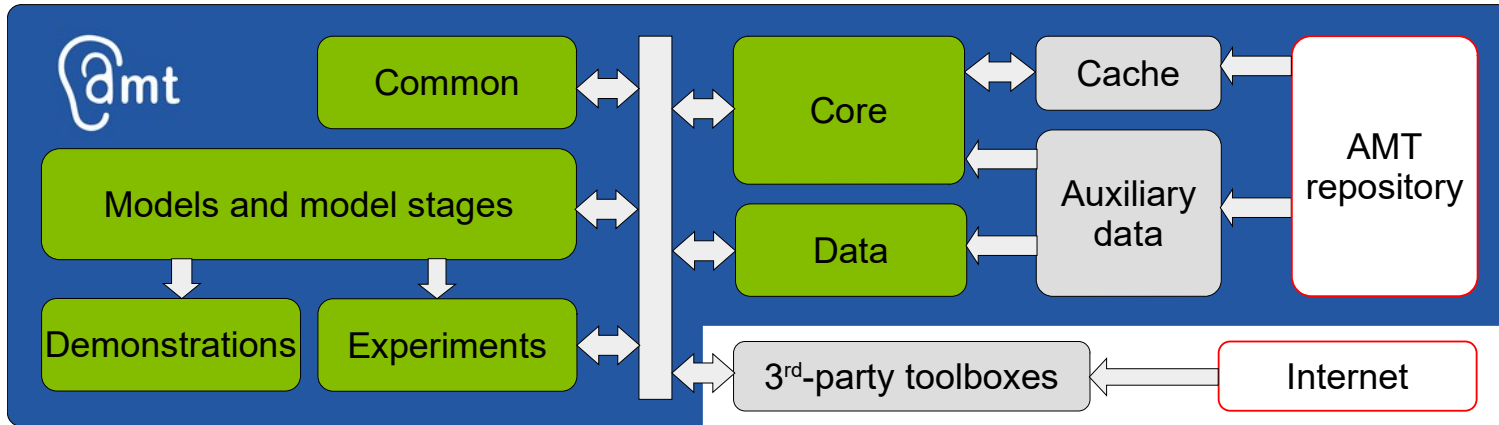
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- Model implementations often rely on toolboxes
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The AMT: General structure



- 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>
 - 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'; amt_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?
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- Cheat sheet: <http://amtoolbox.org>
 - Workshop slides online