



Presenting eevoke:

eevoke™ is a universal and highly reliable stimulation package that can present stimuli with any kind of complexity in cognitive experiments. Stimulus presentation can be visual, auditory or a combination. Moreover, eevoke can be interfaced with external devices such as photic, electrical or laser stimulators. eevoke provides optimal synchronization of the stimuli with your recordings, high flexibility and maximum ease of use.

Easy to control

Using the **eevoke™** package, stimulation is controlled through a scenario. Scenarios contain information regarding the timing and event codes of multimedia files, and define the sequence of trials and blocks in the experiment. Both presentation and corresponding control information are interpreted in real time, resulting in a complete and highly flexible environment for stimulation.

Straightforward design of your experiment

One of the intellectual challenges of brain research is to develop good experimental paradigms focusing on a particular aspect of brain function. **eevoke™** gives you a practical and dedicated tool rather than just another programming language to deal with the composition of your multimedia scenario. This MS-Excel® based experiment generator allows you to compose even the most complicated paradigm. The **eevoke** toolbar in MS-Excel® conveniently supports the entire experiment design and scenario testing process. A single MS-Excel® worksheet may be used to define the order and type of presentations in an experiment. This can be extended easily by using multiple worksheets to define trials, blocks, and complete experiments. Worksheets can also be nested, thus providing a very flexible way for designing the most difficult stimulation protocol. The combination of the (pseudo) randomization tools of **eevoke** and the powerful formulas of MS-Excel® makes **eevoke** an ideal package for implementing and running your paradigm. Designing and testing your experiments becomes as simple as operating a spreadsheet program.



Features:

- Windows-based stimulation software
- Scenarios are stored in database format
- Microsoft Excel templates to design and make scenario files
- 26 codes to define a complete stimulation scenario
- Accepts TTL from external devices like fMRI scanner
- Trigger output through parallel and serial ports
- Automatic support for dual display (stimulation and control at separate monitors)
- Visual and auditory stimulation can be presented simultaneously
- Support for MIDI, WAV sounds
- Internal cue points in sound files can be used as triggers.
- Graphics support for BMP, JPG, GIF, PNG
- Movie support for AVI, MPG



Figure 1: The response of the patient can easily be monitored on the stimulation system while the images are presented at a second monitor (dual display).



Figure 2: Responses can be measured during the stimulation and are stored in a scenario file together with reaction times and event codes.

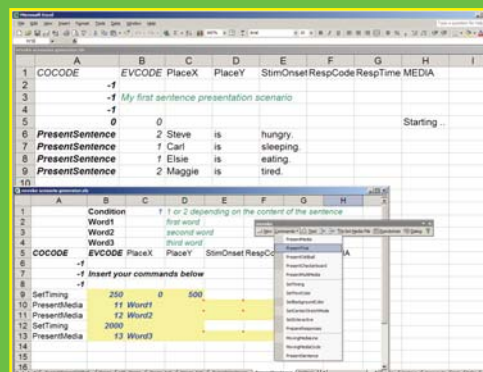


Figure 3: The design of **eevoke™** scenarios is completely integrated in MS-Excel®. The **eevoke** toolbar provides all stimulation commands as well as useful design tools, such as randomization and scenario testing.



Figure 4: **eevoke** allows you to present visual and auditory stimuli at the same time.

Flexible setup

eevoke™ supports a dual-monitor display, and automatically uses the second screen when connected. This clever feature allows you to run the experiment on the subject's display and at the same time monitor the stimuli as well as the reactions of the subject on the control display.

Interactive control

Stimulus responses are incorporated automatically when a USB response pad is connected to the system. Responses are registered with a high accuracy and are stored in the scenario file. The **eevoke™** analysis tool in MS-Excel® will automatically report the behavioral results as a summary of reaction errors and time information, immediately after the experiment has ended. **eevoke** can also be integrated with your fMRI setup. Experiments in **eevoke** are synchronized based upon the pulses generated by the scanner. For more information on integration of other external devices, please contact ANT.

eevoke recognizes cue points when playing sound stimuli and automatically generates triggers accordingly. This is extremely useful when you want to present natural sentences or music, where you need to mark exactly the onset and/or end of certain characteristics in the sound file. **eevoke** automatically creates one trigger at the start of the sound file and then creates additional triggers at the cue points inside the sound file. No need anymore to edit triggers manually – **eevoke** inserts them for you!

Smooth integration with asa-lab™

eevoke™ is part of **asa-lab™** - the most advanced ERP/EP acquisition and analysis solution available. **asa-lab** is a complete system for research of event-related potentials in the area of cognitive neuroscience.

asa-lab allows you to remotely control **eevoke**; scenarios can be started automatically as an integral part of the actual recording. Using this feature, you never have to worry about pressing that *Start* button - **asa-lab** does it for you!

Communication between the **eevoke** and the **asa-lab** recording system is accomplished using either a standard parallel or serial port. **eevoke** can be connected to your own EEG machine provided that a trigger input is available in the recording system.



System requirements:

- Pentium® 4 with 512 Mb of RAM memory
- Graphics card 32 Mb memory dual head
- Modern soundcard
- 40 Gb of free space on hard disk
- 1 free USB port for response pad
- Windows XP Professional

► Presenting eevoke (continued):

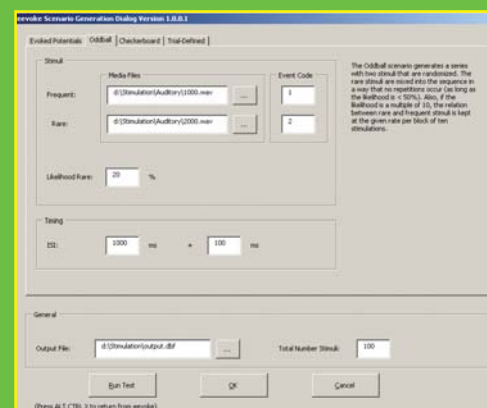


Figure 5: Experiments are easily designed using the predefined templates.

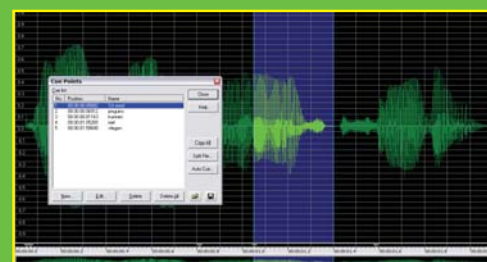


Figure 6: Cue points can be added to sound files to create additional trigger codes in eevoke.



Figure 7: Examples of pictures for a face recognition experiment.

