

E-Prime Extensions for fMRI and Hardware Integration (using the Fiber Optic Button Response System)

- 1) What are E-Prime Extensions?
- 2) What comes with EEfMRI?
 - Sync start of experiment with first scanner trigger pulse
 - Package calls for enhanced functionality
 - Extra data file (PDAT)
 - Premade experiments
 1. fMRIPress
 - A. Learn to respond using the FOBRS
 2. MapperOne
 - A. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1620013/>
 - a. Visual-Motor
 - b. Language task - Verb Generation
 - c. Working Memory - N-back
 - d. Emotional Pictures
- 3) EEfMRI licensing
 - E-Prime 2.0 key for experiment design in E-Studio
 - Separate EEfMRI key needed at runtime only
 - Currently only compatible with E-Prime 2.0.8.90(a)
- 4) Timing
 - Always test on computer before real data collection
 - Shut down background apps
 - Cumulative timing
 1. Match trial length with scanner's pulse sequence
 2. Delays in the onset of an event result in an equivalent reduction in the Duration of the event, such that the cumulative timing error is minimized.
 - PreRelease
- 5) Data Files:
 - Edat2
 - txt
 - PDAT
 1. Tab-delimited data file
 - A. Excel is an example of a program that can open this

- Note of caution: if you don't change the subject/session number before each run, these will be overwritten
 1. How to change this using StartupInfo
- 6) Adding package calls to your own experiment (for complete list, see the EEfMRI User Manual)
- fMRISessionInit
 1. Prepares experiment for fMRI packages and opens PDAT file
 - fMRIMenuBegin
 1. Creates a menu to select from attributes in specified List from the MenuItem column
 - fMRIRunBegin
 1. Waits for trigger time and logs it as the “zero time” for the trial
 - fMRIRunEnd
 1. Run Report at end to quickly assess if run should be repeated
 - fMRICheckForBreak
 1. If a break request is detected the currently running List will be terminated
 - A. Restart task without terminating the entire experiment
 - fMRIResetListsByName
 1. Directs EEfMRI to reset and reuse all of the stimulus items in a specified List
 - A. Alternative: List Properties > Reset/Exit tab > ‘Reset at beginning of each Run’
- 7) Fiber Optic Button Response System (FOBRS)
- Accepting input
 1. Trigger from scanner
 - A. BNC connector
 2. Response from participant
 - A. Serial mode
 - B. USB X-keys mode
 3. External I/O connection
 - Tips
 1. Read the manual for all warnings and instructions.
 2. Calibrate at the beginning of each day per manual
 3. Proper care of equipment
- 8) Using FOBRS without EEfMRI
- Adding FOBRS as SRBox device
 1. Standard - 5 key inputs (Also used for SRBox)
 2. BRU Right Only – Right hand BRU only with buttons numbered 1, 2, 3, 4, 5 (1=thumb)
 3. BRU Left Only – Left hand BRU only with buttons numbered 1, 2, 3, 4, 5 (1=thumb)

4. BRU Unique - Both BRU's with right hand buttons numbered 1, 2, 3, 4, 5 (1=thumb) and left hand buttons numbered 6, 7, 8, 9, A/a (6=thumb)
 5. BRU Duplicate - Both BRUs with right hand buttons numbered 1, 2, 3, 4, 5 (1=thumb) and left-hand buttons numbered 1, 2, 3, 4, 5 (1=thumb)
- Character from scanner trigger pulse
 1. Serial mode: ^
 2. X-keys mode: =

9) Using EefMRI without FOBRS

- Depending on your input, change input device to one of the following:
 1. Keyboard, Mouse, Human Interface Device, Joystick, or Gamepad

10) Support available from www.pstnet.com/support

Q&A