Madym: Manchester Dynamic MRI Toolkit

# Command line tools

## Madym

Usage: [-m string] [-o string] [-no\_opt bool] [-vfa double list] [-dyn string] [-Cin bool] [-Cout bool] [-Cmod bool] [-T1 string] [-S0 string] [-useRatio bool] [-T1noise float] [-H float] [-r1 float] [-D float] [-i integer] [-first integer] [-last integer] [-roi string] [-aif string] [-pif string] [-log string] [-audit string] [-E string] [-iauc double list] [-init\_params double list] [-init\_maps string] [-param\_names double list] [-fixed\_params integer list] [-fixed\_values double list] [-dyn\_noise bool] [-enh bool] [-overwrite bool] [-help bool] [-version bool]

REQUIRED:

Optional:

-m string Model to fit, see notes for options ['']

-o string Output path ['']

-no\_opt bool Flag to switch off optimising, will just fit initial parameters values for model [not set]

-vfa double list Fielpaths to input signal volumes (eg from variable flip angles) file names, comma separated (no spaces) []

-dyn string Template name for dynamic sequences eg. dynamic/dyn\_ ['dyn\_']

-Cin bool Flag specifying input dynamic sequence are concentration (not signal) maps [not set]

-Cout bool Flag requesting concentration (derived from signal) are saved to output [not set]

-Cmod bool Flag requesting modelled concentration maps are saved to output [not set]

-T1 string Path to T1 map ['']

-S0 string Path to S0 map ['']

-useRatio bool Flag to use ratio method to scale signal instead of supplying S0 [set]

-T1noise float Noise threshold for fitting baseline T1 [100]

-H float Haematocrit correction [0.42]

-r1 float Relaxivity constant of concentration in tissue [3.4]

-D float Concentration dose [0.1]

-i integer Injection image [8]

-first integer First image [0]

-last integer Last image [0]

-roi string Path to ROI map ['']

-aif string Path to precomputed AIF if not using population AIF ['']

-pif string Path to precomputed PIF if not deriving from AIF ['']

-log string Madym log file name ['MadymLog']

-audit string Audit file name ['AuditLog']

-E string Error codes image file name ['error\_codes']

-iauc double list Times (in s) at which to compute IAUC maps [ 30 60 90]

-init\_params double list Initial values for model parameters to be optimised []

-init\_maps string Path to directory containing maps of parameters to initialise fit (overrides init\_params) ['']

-param\_names double list Names of model parameters to be optimised, used to name the output parameter maps, comma separated (no spaces) []

-fixed\_params integer list Parameters fixed to their initial values (ie not optimised) []

-fixed\_values double list Values for fixed parameters (overrides default initial parameter values) []

-dyn\_noise bool Set to use varying temporal noise in model fit OFF [not set]

-enh bool Set test-for-enhancement flag OFF [not set]

-overwrite bool Set overwrite existing analysis in output dir ON [not set]

-help bool Show this usage and quit [not set]

-version bool Print version to stdout and quit [not set]

-h bool Print this message

Description

## Madym-lite

Usage: [-m string] [-d string] [-n integer] [-o string] [-O string] [-t string] [-Cin bool] [-Cout bool] [-Cmod bool] [-no\_opt bool] [-useRatio bool] [-H float] [-D float] [-TR float] [-FA float] [-r1 float] [-i integer] [-first integer] [-last integer] [-aif string] [-pif string] [-iauc double list] [-init\_params double list] [-init\_file string] [-param\_names double list] [-fixed\_params integer list] [-fixed\_values double list] [-dyn\_noise string] [-enh bool] [-help bool] [-version bool]

REQUIRED:

Optional:

-m string Model to fit, see notes for options ['']

-d string Input data filename, see notes for options ['']

-n integer Number of time-points in data [0]

-o string Output path ['']

-O string Output path ['madym\_analysis.dat']

-t string Time associated with each dynamic signal, see notes for options ['']

-Cin bool Flag specifying input dynamic sequence are concentration (not signal) maps [not set]

-Cout bool Flag requesting concentration (derived from signal) are saved to output [not set]

-Cmod bool Flag requesting modelled concentration maps are saved to output [not set]

-no\_opt bool Flag to switch off optimising, will just fit initial parameters values for model [not set]

-useRatio bool Flag to use ratio method to scale signal instead of supplying S0 [not set]

-H float Haematocrit correction [0.42]

-D float Concentration dose [0.1]

-TR float TR of dynamic series [0]

-FA float Flip angle of dynamic series [0]

-r1 float Relaxivity constant of concentration in tissue [3.4]

-i integer Injection image [8]

-first integer First image [0]

-last integer Last image [-1]

-aif string Path to precomputed AIF if not using population AIF ['']

-pif string Path to precomputed PIF if not deriving from AIF ['']

-iauc double list Times (in s) at which to compute IAUC maps []

-init\_params double list Initial values for model parameters to be optimised []

-init\_file string Path to directory containing maps of parameters to initialise fit (overrides init\_params) ['']

-param\_names double list Names of model parameters to be optimised, used to name the output parameter maps, comma separated (no spaces) []

-fixed\_params integer list Parameters fixed to their initial values (ie not optimised) []

-fixed\_values double list Values for fixed parameters (overrides default initial parameter values) []

-dyn\_noise string File to set varying temporal noise in model fit ['']

-enh bool Set test-for-enhancement flag OFF [not set]

-help bool Show this usage and quit [not set]

-version bool Print version to stdout and quit [not set]

-h bool Print this message

## Calculate T1

Usage: [-maps double list] [-o string] [-m string] [-noise float] [-roi string] [-log string] [-audit string] [-E string] [-overwrite bool] [-help bool] [-version bool]

REQUIRED:

Optional:

-maps double list Variable flip angle file names, comma separated (no spaces) []

-o string Output path ['']

-m string T1 method to use to fit, see notes for options ['VFA']

-noise float PD noise threshold [100]

-roi string Path to ROI map ['']

-log string T1 log file name ['T1Log']

-audit string Audit file name ['auditLog']

-E string Error codes image file name ['error\_codes']

-overwrite bool Set overwrite existing analysis in output dir ON [not set]

-help bool Show this usage and quit [not set]

-version bool Print version to stdout and quit [not set]

-h bool Print this message

## Calculate T1-lite

Usage: [-FA string] [-s string] [-n integer] [-TR float] [-o string] [-O string] [-m string] [-log string] [-audit string] [-E string] [-overwrite bool] [-help bool] [-version bool]

REQUIRED:

Optional:

-FA string FA data filename, see notes for options ['']

-s string FA data filename, see notes for options ['']

-n integer Number of time-points in data [0]

-TR float TR of dynamic series [0]

-o string Output path ['']

-O string Output path ['T1\_fit.dat']

-m string T1 method to use to fit, see notes for options ['VFA']

-log string Madym log file name ['']

-audit string Audit file name ['']

-E string Error codes image file name ['']

-overwrite bool Set overwrite existing analysis in output dir ON [not set]

-help bool Show this usage and quit [not set]

-version bool Print version to stdout and quit [not set]

-h bool Print this message

# User interface tool

# Modular library