Toolkit Release 2

Yiannis Andrianakis

July 8, 2009

Release 1

- Public since 8/4/09
- Contains mostly the ThreadCoreGP
  - Priors
  - Design
  - Fitting
  - Uncertainty / Sensitivity analysis
- $>$ 60 pages

Release 2

- 4 Threads
- $>$ 90 pages
- New look!

Release 2

- 4 Threads
- $>$ 90 pages
- New look!

Release 2

- 4 Threads
- $>$ 90 pages
- New look!

Release 2

- 4 Threads
- $>$ 90 pages
- New look!

New Threads

- ThreadCoreBL - *Jonathan*
- ThreadVariantMultipleOutputs - *Remi, Dan*
- ThreadGenericMultipleEmulators - *Tony*

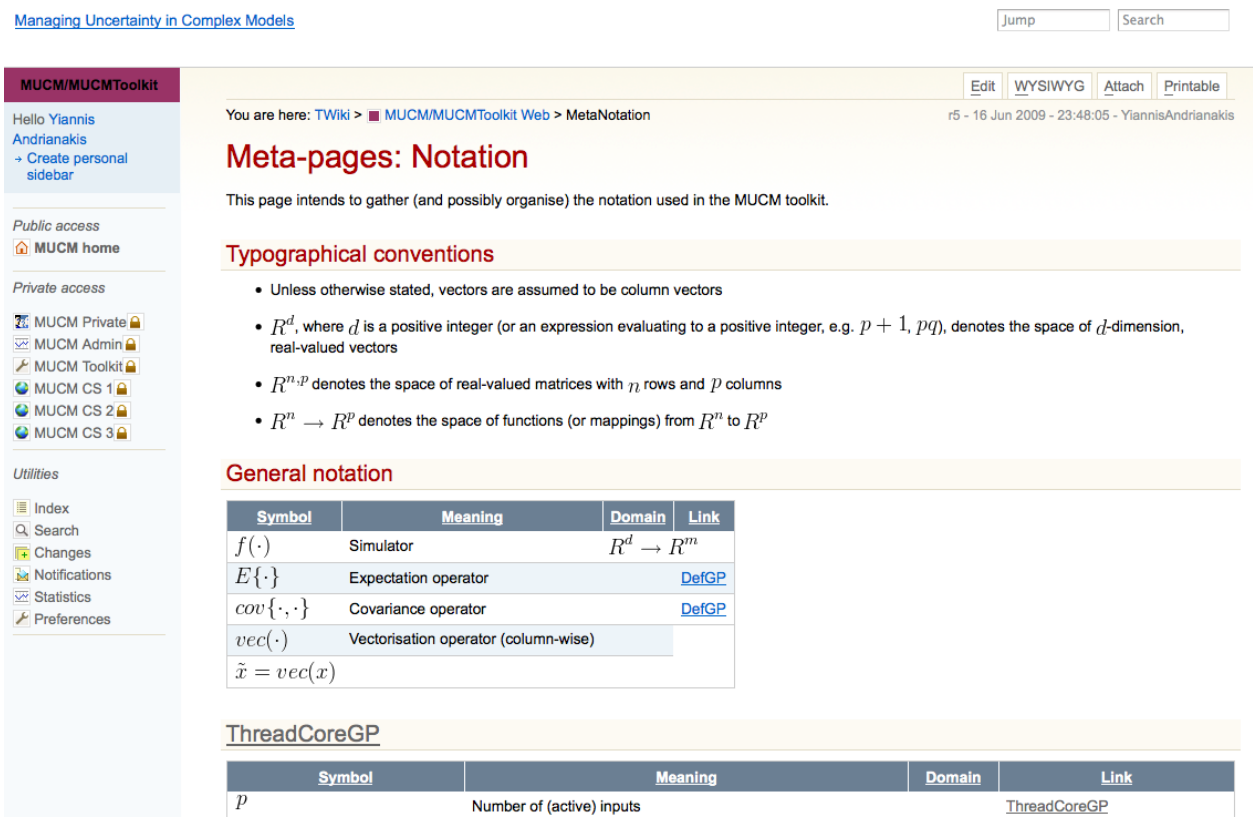
New Threads

- ThreadCoreBL - *Jonathan*
- ThreadVariantMultipleOutputs - *Remi, Dan*
- ThreadGenericMultipleEmulators - *Tony*

More varieties of Threads - Naming conventions

Notation

- Notation Page



Managing Uncertainty in Complex Models

Jump Search

MUCM/MUCMToolkit

Hello Yiannis Andrianakis
→ Create personal sidebar

Public access
MUCM home

Private access
MUCM Private
MUCM Admin
MUCM Toolkit
MUCM CS 1
MUCM CS 2
MUCM CS 3

Utilities
Index
Search
Changes
Notifications
Statistics
Preferences

Edit WYSIWYG Attach Printable

You are here: TWiki > MUCM/MUCMToolkit Web > MetaNotation

r5 - 16 Jun 2009 - 23:48:05 - YiannisAndrianakis

Meta-pages: Notation

This page intends to gather (and possibly organise) the notation used in the MUCM toolkit.

Typographical conventions

- Unless otherwise stated, vectors are assumed to be column vectors
- R^d, where d is a positive integer (or an expression evaluating to a positive integer, e.g. $p+1$, pq), denotes the space of d-dimension, real-valued vectors
- $R^{n,p}$ denotes the space of real-valued matrices with n rows and p columns
- $R^n \rightarrow R^p$ denotes the space of functions (or mappings) from R^n to R^p

General notation

Symbol	Meaning	Domain	Link
$f(\cdot)$	Simulator	$R^d \rightarrow R^m$	
$E\{\cdot\}$	Expectation operator		DefGP
$cov\{\cdot,\cdot\}$	Covariance operator		DefGP
$vec(\cdot)$	Vectorisation operator (column-wise)		
$\tilde{x} = vec(x)$			

ThreadCoreGP

Symbol	Meaning	Domain	Link
p	Number of (active) inputs		ThreadCoreGP

Notation

- Notation Page
- E[x],Var[x, x'],Cov[x, x']
- A or R? $T(x)$ or $r(x)$?
- Are we using $\mathbf{x}$ for vectors or x?
- Do we keep the floating δ's?

Notation

- Notation Page
- E[x],Var[x, x'],Cov[x, x']
- A or R? $T(x)$ or $r(x)$?
- Are we using $\mathbf{x}$ for vectors or x?
- Do we keep the floating δ's?

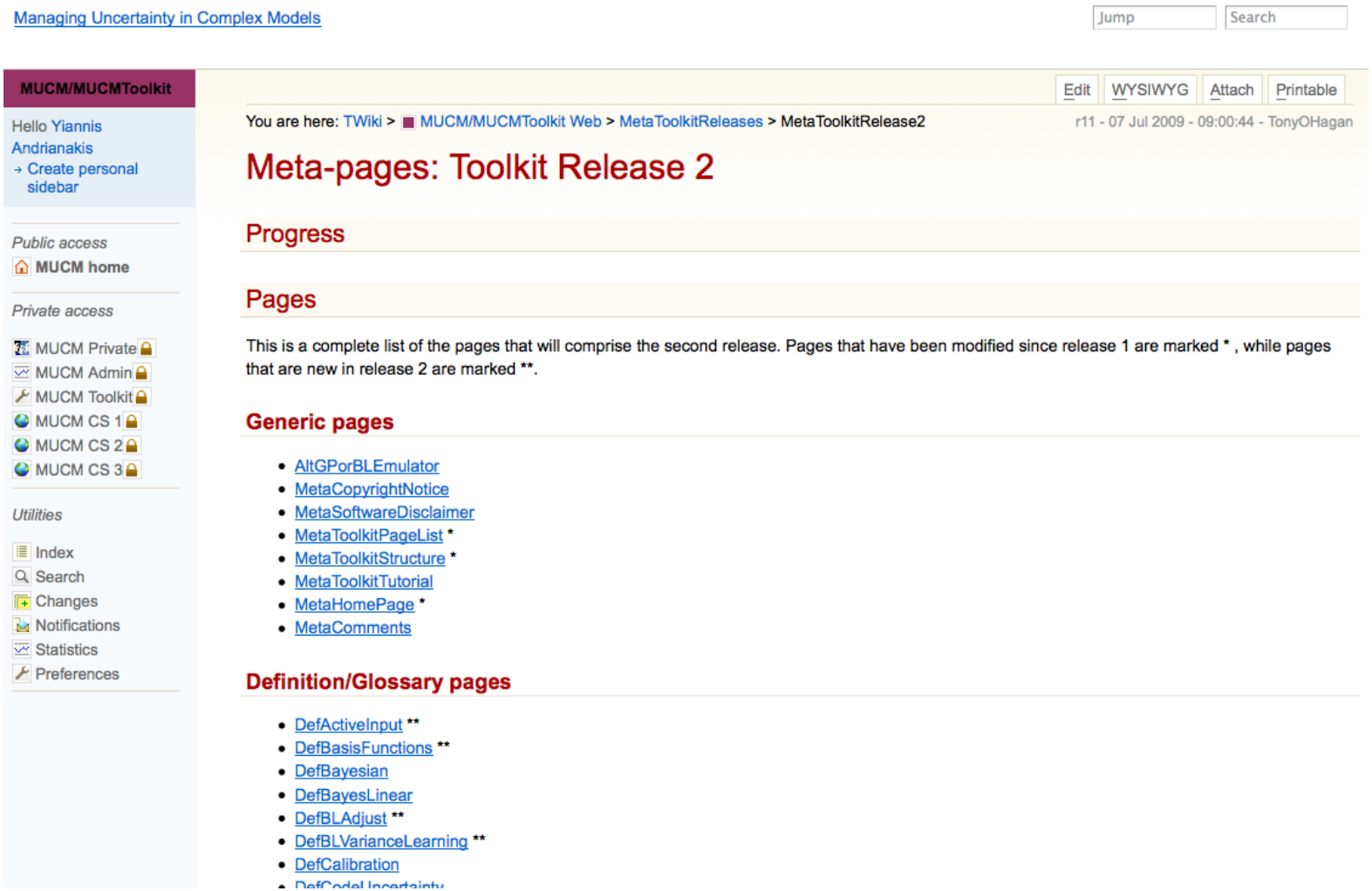
Notation

- Notation Page
- E[x],Var[x, x'],Cov[x, x']
- A or R? $T(x)$ or $r(x)$?
- Are we using $\mathbf{x}$ for vectors or x?
- Do we keep the floating δ's?

Notation

- Notation Page
- E[x],Var[x, x'],Cov[x, x']
- A or R? $T(x)$ or $r(x)$?
- Are we using $\mathbf{x}$ for vectors or x?
- Do we keep the floating δ's?

Page List



Managing Uncertainty in Complex Models

Jump Search

MUCM/MUCMToolkit

Hello Yiannis Andrianakis
→ Create personal sidebar

Public access
MUCM home

Private access
MUCM Private
MUCM Admin
MUCM Toolkit
MUCM CS 1
MUCM CS 2
MUCM CS 3

Utilities
Index
Search
Changes
Notifications
Statistics
Preferences

Edit WYSIWYG Attach Printable

You are here: TWiki > MUCM/MUCMToolkit Web > MetaToolkitReleases > MetaToolkitRelease2

r11 - 07 Jul 2009 - 09:00:44 - TonyOHagan

Meta-pages: Toolkit Release 2

Progress

Pages

This is a complete list of the pages that will comprise the second release. Pages that have been modified since release 1 are marked * , while pages that are new in release 2 are marked **.

Generic pages

- AltGPorBLEmulator
- MetaCopyrightNotice
- MetaSoftwareDisclaimer
- MetaToolkitPageList *
- MetaToolkitStructure *
- MetaToolkitTutorial
- MetaHomePage *
- MetaComments

Definition/Glossary pages

- DefActiveInput **
- DefBasisFunctions **
- DefBayesian
- DefBayesLinear
- DefBLAdjust **
- DefBLVarianceLearning **
- DefCalibration
- DefCodeUncertainty

Example Page

Managing Uncertainty in Complex Models

Jump Search

MUCM/MUCMToolkit

Hello Yiannis Andrianakis
→ Create personal sidebar

Public access
MUCM home

Private access
MUCM Private
MUCM Admin
MUCM Toolkit
MUCM CS 1
MUCM CS 2
MUCM CS 3

Utilities
Index
Search
Changes
Notifications
Statistics
Preferences

Edit WYSIWYG Attach Printable

You are here: TWiki > MUCM/MUCMToolkit Web > MetaToolkitStructure > ThreadCoreGP > ExamCoreGP1Dim

r5 - 08 Jul 2009 - 01:35:22 - YiannisAndrianakis

Example: A one dimensional emulator

Model (simulator) description

In this page we present an example of fitting an emulator to a $p = 1$ dimensional simulator (model), which is *surfebm*. The model has 11 inputs, but in this example we will keep all of them fixed, apart from 1, the solar constant. The model has three outputs, but in this example we are only interested in the mean surface temperature. Figure 1 shows the output of the model for the input range of the solar constant that we will try to emulate.

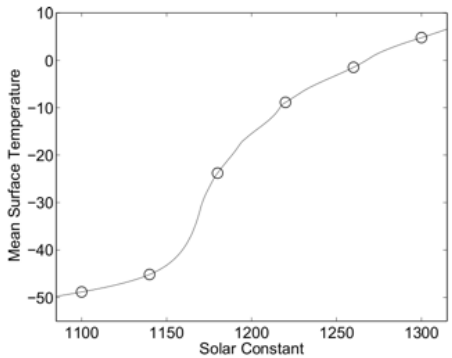


Figure 1. The output of the simulator and the selected design points.

Design

Design is the selection of the input points at which the simulator is to be run. There are several design options that can be used, as described in AltCoreDesign. For this example, we will use an Optimised Latin Hypercube Design, which for one dimension is a set of equidistant points on the space of the input variable.

We select $n = 6$ design points, which are shown in Figure 1 as circles. These points are

$$\{\tilde{x}_1, \tilde{x}_2, \cdots, \tilde{x}_6\} = \{1100, 1140, 1180, 1220, 1260, 1300\}$$

Other (proposed) additions

- User Feedback
- Google analytics
- Internal blog
- Chart tool

Other (proposed) additions

- User Feedback
- Google analytics
- Internal blog
- Chart tool

Other (proposed) additions

- User Feedback
- Google analytics
- Internal blog
- Chart tool

Other (proposed) additions

- User Feedback
- Google analytics
- Internal blog
- Chart tool

Other (proposed) additions

- User Feedback
- Google analytics
- Internal blog
- Chart tool