TMVA Configuration Options Reference

Reference version: TMVA-v4.2.0 TMVA

Reference for configuration options defined in the option string of each MVA method booking, and for the definition of data training and testing (Factory).

Table fields:

Option:	The option identifier in the option string (given, e.g., in "factory->BookMethod(...)" call).
Array:	Can the option be set individually for each input variable via the "[i]" tag, where "i" is the ith vari
Default value:	Value used if option is not explicitly set in the configuration option string.
Predefined values:	Options can be categories of predefined values among which the user must choose.
Description:	Info about the option.

Colour codes:

Greenish rows:	Options shared by all MVA methods (through common base class).
Bluish rows:	Specific MVA options.
Yellowish rows:	Configuration options for minimiser (fitter) classes.
Redish rows:	Options for other configurable classes.

Available MVA methods (1st row), minimisation tools (2nd row), and other configurables (3rd row):

[MVA::HMatrix] [MVA::Fisher] [MVA::PDERS] [MVA::FDA] [MVA::LD] [MVA::SVM] [MVA::CFMlpANN] [MVA::KNN] [MVA
[MVA::Boost] [MVA::RuleFit] [MVA::Likelihood] [MVA::MLP] [MVA::Cuts] [MVA::PDEFoam] [MVA::TMlpANN]

[Fitter_SA] [Fitter_MC] [Fitter_Minuit] [Fitter_GA]

[DataSetFactory] [PDF] [Factory]

Configuration options for MVA method :

Configuration options reference for MVA method: *HMatrix*

Option	Array	Default value	Predefined values	Description
V	No	False	–	Verbose output (short form of Verbo overrides the latter one)
VerbosityLevel	No	Default	Default, Debug, Verbose, Info, Warning, Error, Fatal	Verbosity level
VarTransform	No	None	–	List of variable transformations perf training, e.g., D_Background,P_Signal,G,N_AllCl Decorrelation, PCA-transformation, Normalisation, each for the given cl ('AllClasses' denotes all events of a class indication is given, 'All' is assu
H	No	False	–	Print method-specific help message
CreateMVAPdfs	No	False	–	Create PDFs for classifier outputs (s background)
IgnoreNegWeightsInTraining	No	False	–	Events with negative weights are ig training (but are included for testing evaluation)

Configuration options for MVA method :

Configuration options reference for MVA method: *Fisher*

Option	Array	Default value	Predefined values	Description

V	No	False	–	Verbose output (short form of Verbo overrides the latter one)
VerbosityLevel	No	Default	Default, Debug, Verbose, Info, Warning, Error, Fatal	Verbosity level
VarTransform	No	None	–	List of variable transformations perf training, e.g., D_Background,P_Signal,G,N_AllCl Decorrelation, PCA-transformation, Normalisation, each for the given cl ('AllClasses' denotes all events of a class indication is given, 'All' is assu
H	No	False	–	Print method-specific help message
CreateMVAPdfs	No	False	–	Create PDFs for classifier outputs (s background)
IgnoreNegWeightsInTraining	No	False	–	Events with negative weights are ig training (but are included for testing evaluation)
Method	No	Fisher	Fisher, Mahalanobis	Discrimination method

Configuration options for MVA method :

Configuration options reference for MVA method: *PDERS*

Option	Array	Default value	Predefined values	Description
V	No	False	–	Verbose output (short form of Verbo overrides the latter one)
VerbosityLevel	No	Default	Default, Debug, Verbose, Info, Warning, Error, Fatal	Verbosity level
VarTransform	No	None	–	List of variable transformations perf training, e.g., D_Background,P_Signal,G,N_AllCl Decorrelation, PCA-transformation, Normalisation, each for the given cl ('AllClasses' denotes all events of a class indication is given, 'All' is assu
H	No	False	–	Print method-specific help message
CreateMVAPdfs	No	False	–	Create PDFs for classifier outputs (s background)
IgnoreNegWeightsInTraining	No	False	–	Events with negative weights are ig training (but are included for testing evaluation)
VolumeRangeMode	No	Adaptive	Unscaled, MinMax, RMS, Adaptive, kNN	Method to determine volume size
KernelEstimator	No	Box	Box, Sphere, Teepee, Gauss, Sinc3, Sinc5, Sinc7, Sinc9, Sinc11, Lanczos2, Lanczos3, Lanczos5, Lanczos8, Trim	Kernel estimation function
DeltaFrac	No	3	–	nEventsMin/Max for minmax and rm
NEventsMin	No	100	–	nEventsMin for adaptive volume rar
NEventsMax	No	200	–	nEventsMax for adaptive volume ra
MaxVIterations	No	150	–	MaxVIterations for adaptive volume

InitialScale	No	0.99	–	InitialScale for adaptive volume ran
GaussSigma	No	0.1	–	Width (wrt volume size) of Gaussiar
NormTree	No	False	–	Normalize binary search tree

Configuration options for MVA method :

Configuration options reference for MVA method: *FDA*

Option	Array	Default value	Predefined values	Description
V	No	False	–	Verbose output (short form of Verbo overrides the latter one)
VerbosityLevel	No	Default	Default, Debug, Verbose, Info, Warning, Error, Fatal	Verbosity level
VarTransform	No	None	–	List of variable transformations perf training, e.g., D_Background,P_Signal,G,N_AllCl Decorrelation, PCA-transformation, Normalisation, each for the given cl ('AllClasses' denotes all events of a class indication is given, 'All' is assu
H	No	False	–	Print method-specific help message
CreateMVAPdfs	No	False	–	Create PDFs for classifier outputs (s background)
IgnoreNegWeightsInTraining	No	False	–	Events with negative weights are ig training (but are included for testing evaluation)
Formula	No	(0)	–	The discrimination formula
ParRanges	No	()	–	Parameter ranges
FitMethod	No	MINUIT	MC, GA, SA, MINUIT	Optimisation Method
Converger	No	None	None, MINUIT	FitMethod uses Converger to impro

Configuration options for MVA method :

Configuration options reference for MVA method: *LD*

Option	Array	Default value	Predefined values	Description
V	No	False	–	Verbose output (short form of Verbo overrides the latter one)
VerbosityLevel	No	Default	Default, Debug, Verbose, Info, Warning, Error, Fatal	Verbosity level
VarTransform	No	None	–	List of variable transformations perf training, e.g., D_Background,P_Signal,G,N_AllCl Decorrelation, PCA-transformation, Normalisation, each for the given cl ('AllClasses' denotes all events of a class indication is given, 'All' is assu
H	No	False	–	Print method-specific help message
CreateMVAPdfs	No	False	–	Create PDFs for classifier outputs (s background)
IgnoreNegWeightsInTraining	No	False	–	Events with negative weights are ig training (but are included for testing evaluation)

Configuration options for MVA method :

Configuration options reference for MVA method: *SVM*

Option	Array	Default value	Predefined values	Description
V	No	False	–	Verbose output (short form of Verbo overrides the latter one)
VerbosityLevel	No	Default	Default, Debug, Verbose, Info, Warning, Error, Fatal	Verbosity level
VarTransform	No	None	–	List of variable transformations perf training, e.g., D_Background,P_Signal,G,N_AllCl Decorrelation, PCA-transformation, Normalisation, each for the given cl ('AllClasses' denotes all events of a class indication is given, 'All' is assu
H	No	False	–	Print method-specific help message
CreateMVAPdfs	No	False	–	Create PDFs for classifier outputs (s background)
IgnoreNegWeightsInTraining	No	False	–	Events with negative weights are ig training (but are included for testing evaluation)
Gamma	No	1	–	RBF kernel parameter: Gamma (siz
C	No	1	–	Cost parameter
Tol	No	0.01	–	Tolerance parameter
MaxIter	No	1000	–	Maximum number of training loops

Configuration options for MVA method :

Configuration options reference for MVA method: *CFMlpANN*

Option	Array	Default value	Predefined values	Description
V	No	False	–	Verbose output (short form of Verbo overrides the latter one)
VerbosityLevel	No	Default	Default, Debug, Verbose, Info, Warning, Error, Fatal	Verbosity level
VarTransform	No	None	–	List of variable transformations perf training, e.g., D_Background,P_Signal,G,N_AllCl Decorrelation, PCA-transformation, Normalisation, each for the given cl ('AllClasses' denotes all events of a class indication is given, 'All' is assu
H	No	False	–	Print method-specific help message
CreateMVAPdfs	No	False	–	Create PDFs for classifier outputs (s background)
IgnoreNegWeightsInTraining	No	False	–	Events with negative weights are ig training (but are included for testing evaluation)
NCycles	No	3000	–	Number of training cycles
HiddenLayers	No	N,N-1	–	Specification of hidden layer archite

Configuration options for MVA method :

Configuration options reference for MVA method: *KNN*

Option	Array	Default value	Predefined values	Description
V	No	False	–	Verbose output (short form of Verbo overrides the latter one)
VerbosityLevel	No	Default	Default, Debug, Verbose, Info, Warning, Error, Fatal	Verbosity level
VarTransform	No	None	–	List of variable transformations perf training, e.g., D_Background,P_Signal,G,N_AllCl Decorrelation, PCA-transformation, Normalisation, each for the given cl ('AllClasses' denotes all events of a class indication is given, 'All' is assu
H	No	False	–	Print method-specific help message
CreateMVAPdfs	No	False	–	Create PDFs for classifier outputs (s background)
IgnoreNegWeightsInTraining	No	False	–	Events with negative weights are ig training (but are included for testing evaluation)
nkNN	No	20	–	Number of k-nearest neighbors
BalanceDepth	No	6	–	Binary tree balance depth
ScaleFrac	No	0.8	–	Fraction of events used to compute
SigmaFact	No	1	–	Scale factor for sigma in Gaussian I
Kernel	No	Gaus	–	Use polynomial (=Poln) or Gaussian
Trim	No	False	–	Use equal number of signal and bac
UseKernel	No	False	–	Use polynomial kernel weight
UseWeight	No	True	–	Use weight to count kNN events
UseLDA	No	False	–	Use local linear discriminant - exper

Configuration options for MVA method :

Configuration options reference for MVA method: *BDT*

Option	Array	Default value	Predefined values	Description
V	No	False	–	Verbose output (short forı VerbosityLevel below - ov one)
VerbosityLevel	No	Default	Default, Debug, Verbose, Info, Warning, Error, Fatal	Verbosity level
VarTransform	No	None	–	List of variable transforma before training, e.g., D_Background,P_Signal, for: Decorrelation, PCA-tr Gaussianisation, Normali the given class of events denotes all events of all c indication is given, 'All' is
H	No	False	–	Print method-specific help
CreateMVAPdfs	No	False	–	Create PDFs for classifie and background)
IgnoreNegWeightsInTraining	No	False	–	Events with negative weig in the training (but are inc and performance evaluat

NTrees	No	800	−	Number of trees in the fo
MaxDepth	No	3	−	Max depth of the decisior
MinNodeSize	No	5%	−	Minimum percentage of t required in a leaf node (d Classification: 5%, Regre
nCuts	No	20	−	Number of grid points in used in finding optimal cu
BoostType	No	AdaBoost	AdaBoost, RealAdaBoost, Bagging, AdaBoostR2, Grad	Boosting type for the tree
AdaBoostR2Loss	No	Quadratic	Linear, Quadratic, Exponential	Type of Loss function in A
UseBaggedBoost	No	False	−	Use only a random subsa for growing the trees in e
Shrinkage	No	1	−	Learning rate for GradBo
AdaBoostBeta	No	0.5	−	Learning rate for AdaBoo
UseRandomisedTrees	No	False	−	Determine at each node s variable only as the best subset of variables (like i RandomForests)
UseNvars	No	2	−	Size of the subset of varia RandomisedTree option
UsePoissonNvars	No	True	−	Interpret UseNvars not as as mean of a Possion dis split with RandomisedTre
BaggedSampleFraction	No	0.6	−	Relative size of bagged e original size of the data s whenever bagging is use UseBaggedGrad, Baggin
UseYesNoLeaf	No	True	−	Use Sig or Bkg categorie purity=S/(S+B) as classifi node -> Real-AdaBoost
NegWeightTreatment	No	InverseBoostNegWeights	InverseBoostNegWeights, IgnoreNegWeightsInTraining, PairNegWeightsGlobal, Pray	How to treat events with n in the BDT training (partic : IgnoreInTraining; Boost boostweight; Pair events positive weights in traning *annihilate* them (experi
NodePurityLimit	No	0.5	−	In boosting/pruning, node NodePurityLimit are signa otherwise.
SeparationType	No	GiniIndex	CrossEntropy, GiniIndex, GiniIndexWithLaplace, MisClassificationError, SDivSqrtSPlusB, RegressionVariance	Separation criterion for no
DoBoostMonitor	No	False	−	Create control plot with R tree number
UseFisherCuts	No	False	−	Use multivariate splits us criterion
MinLinCorrForFisher	No	0.8	−	The minimum linear corre two variables demanded criterion in node splitting

UseExclusiveVars	No	False	–	Variables already used in are not anymore analyse node splitting
DoPreselection	No	False	–	and and apply automatic 100% efficient signal (bk training
RenormByClass	No	False	–	Individually re-normalize to the original size after b
SigToBkgFraction	No	1	–	Sig to Bkg ratio used in T NodePurityLimit, which c real adaboost
PruneMethod	No	NoPruning	NoPruning, ExpectedError, CostComplexity	Note: for BDTs use small (e.g.MaxDepth=3) and N Pruning: Method used for (removal) of statistically i branches
PruneStrength	No	0	–	Pruning strength
PruningValFraction	No	0.5	–	Fraction of events to use automatic pruning.
GradBaggingFraction	No	0.6	–	deprecated: Use *Bagge instead: Defines the fract used in each iteration, e.g UseBaggedGrad=kTRUE
UseNTrainEvents	No	0	–	deprecated: Use *Bagge instead: Number of randc training events used in ra bagged) trees

Configuration options for MVA method :

Configuration options reference for MVA method: *Boost*

Option	Array	Default value	Predefined values	Description
V	No	False	–	Verbose output (short form of Verb overrides the latter one)
VerbosityLevel	No	Default	Default, Debug, Verbose, Info, Warning, Error, Fatal	Verbosity level
VarTransform	No	None	–	List of variable transformations per training, e.g., D_Background,P_Signal,G,N_AllC Decorrelation, PCA-transformation Normalisation, each for the given c ('AllClasses' denotes all events of a class indication is given, 'All' is ass
H	No	False	–	Print method-specific help messag
CreateMVAPdfs	No	False	–	Create PDFs for classifier outputs background)
IgnoreNegWeightsInTraining	No	False	–	Events with negative weights are ig training (but are included for testing performance evaluation)
Boost_Num	No	100	–	Number of times the classifier is bc
Boost_MonitorMethod	No	True	–	Write monitoring histograms for ea classifier
Boost_DetailedMonitoring	No	False	–	Produce histograms for detailed bc monitoring

Boost_Type	No	AdaBoost	AdaBoost, Bagging	Boosting type for the classifiers
Boost_BaggedSampleFraction	No	0.6	–	Relative size of bagged event sam of the data sample (used wheneve
Boost_RecalculateMVACut	No	True	–	Recalculate the classifier MVA Sigı every boost iteration
Boost_AdaBoostBeta	No	1	–	The ADA boost parameter that set every boost step on the events' we
Boost_Transform	No	step	step, linear, log, gauss	Type of transform applied to every linear, log, step
Boost_RandomSeed	No	0	–	Seed for random number generato

Configuration options for MVA method :

Configuration options reference for MVA method: *RuleFit*

Option	Array	Default value	Predefined values	Description
V	No	False	–	Verbose output (short form of Verb overrides the latter one)
VerbosityLevel	No	Default	Default, Debug, Verbose, Info, Warning, Error, Fatal	Verbosity level
VarTransform	No	None	–	List of variable transformations per training, e.g., D_Background,P_Signal,G,N_AllC Decorrelation, PCA-transformation Normalisation, each for the given c ('AllClasses' denotes all events of a class indication is given, 'All' is ass
H	No	False	–	Print method-specific help messag
CreateMVAPdfs	No	False	–	Create PDFs for classifier outputs (background)
IgnoreNegWeightsInTraining	No	False	–	Events with negative weights are ig training (but are included for testing performance evaluation)
GDTau	No	-1	–	Gradient-directed (GD) path: defau
GDTauPrec	No	0.01	–	GD path: precision of tau
GDStep	No	0.01	–	GD path: step size
GDNSteps	No	10000	–	GD path: number of steps
GDErrScale	No	1.1	–	Stop scan when error > scale*errm
LinQuantile	No	0.025	–	Quantile of linear terms (removes c
GDPathEveFrac	No	0.5	–	Fraction of events used for the patl
GDValidEveFrac	No	0.5	–	Fraction of events used for the vali
fEventsMin	No	0.1	–	Minimum fraction of events in a spl
fEventsMax	No	0.9	–	Maximum fraction of events in a sp
nTrees	No	20	–	Number of trees in forest.
ForestType	No	AdaBoost	AdaBoost, Random	Method to use for forest generatior RandomForest)
RuleMinDist	No	0.001	–	Minimum distance between rules
MinImp	No	0.01	–	Minimum rule importance acceptec
Model	No	ModRuleLinear	ModRule, ModRuleLinear, ModLinear	Model to be used

RuleFitModule	No	RFTMVA	RFTMVA, RFFriedman	Which RuleFit module to use
RFWorkDir	No	./rulefit	–	Friedman's RuleFit module (RFF):
RFNrules	No	2000	–	RFF: Mximum number of rules
RFNendnodes	No	4	–	RFF: Average number of end node

Configuration options for MVA method :

Configuration options reference for MVA method: *Likelihood*

Option	Array	Default value	Predefined values	Description
V	No	False	–	Verbose output (short form of Verbo overrides the latter one)
VerbosityLevel	No	Default	Default, Debug, Verbose, Info, Warning, Error, Fatal	Verbosity level
VarTransform	No	None	–	List of variable transformations perf training, e.g., D_Background,P_Signal,G,N_AllCl Decorrelation, PCA-transformation, Normalisation, each for the given cl ('AllClasses' denotes all events of a class indication is given, 'All' is assu
H	No	False	–	Print method-specific help message
CreateMVAPdfs	No	False	–	Create PDFs for classifier outputs (s background)
IgnoreNegWeightsInTraining	No	False	–	Events with negative weights are ig training (but are included for testing evaluation)
TransformOutput	No	False	–	Transform likelihood output by inver function

Configuration options for MVA method :

Configuration options reference for MVA method: *MLP*

Option	Array	Default value	Predefined values	Description
NCycles	No	500	–	Number of training cycles
HiddenLayers	No	N,N-1	–	Specification of hidden layer archite
NeuronType	No	sigmoid	–	Neuron activation function type
RandomSeed	No	1	–	Random seed for initial synapse we unique seed for each run; default va
EstimatorType	No	MSE	MSE, CE, linear, sigmoid, tanh, radial	MSE (Mean Square Estimator) for C Likelihood or CE(Cross-Entropy) for Likelihood
NeuronInputType	No	sum	sum, sqsum, abssum	Neuron input function type
V	No	False	–	Verbose output (short form of Verbo overrides the latter one)
VerbosityLevel	No	Default	Default, Debug, Verbose, Info, Warning, Error, Fatal	Verbosity level
VarTransform	No	None	–	List of variable transformations perf training, e.g., D_Background,P_Signal,G,N_AllCl Decorrelation, PCA-transformation, Normalisation, each for the given cl ('AllClasses' denotes all events of a

				class indication is given, 'All' is assu
H	No	False	–	Print method-specific help message
CreateMVAPdfs	No	False	–	Create PDFs for classifier outputs (background)
IgnoreNegWeightsInTraining	No	False	–	Events with negative weights are ig training (but are included for testing evaluation)
TrainingMethod	No	BP	BP, GA, BFGS	Train with Back-Propagation (BP), B (BFGS), or Genetic Algorithm (GA - worse)
LearningRate	No	0.02	–	ANN learning rate parameter
DecayRate	No	0.01	–	Decay rate for learning parameter
TestRate	No	10	–	Test for overtraining performed at e
EpochMonitoring	No	False	–	Provide epoch-wise monitoring plot TestRate (caution: causes big ROO
Sampling	No	1	–	Only 'Sampling' (randomly selected trained each epoch
SamplingEpoch	No	1	–	Sampling is used for the first 'Samp epochs, afterwards, all events are t
SamplingImportance	No	1	–	The sampling weights of events in e successful (worse estimator than be multiplied with SamplingImportance divided.
SamplingTraining	No	True	–	The training sample is sampled
SamplingTesting	No	False	–	The testing sample is sampled
ResetStep	No	50	–	How often BFGS should reset histo
Tau	No	3	–	LineSearch size step
BPMode	No	sequential	sequential, batch	Back-propagation learning mode: s
BatchSize	No	-1	–	Batch size: number of events/batch Batch Mode, -1 for BatchSize=num
ConvergenceImprove	No	1e-30	–	Minimum improvement which count (<0 means automatic convergence off)
ConvergenceTests	No	-1	–	Number of steps (without improvem convergence (<0 means automatic check is turned off)
UseRegulator	No	False	–	Use regulator to avoid over-training
UpdateLimit	No	10000	–	Maximum times of regulator update
CalculateErrors	No	False	–	Calculates inverse Hessian matrix a training to be able to calculate the u MVA value
WeightRange	No	1	–	Take the events for the estimator ca small deviations from the desired va deviations only over the weight rang

Configuration options for MVA method :

Configuration options reference for MVA method: *Cuts*

Option	Array	Default value	Predefined values	Description
V	No	False	–	Verbose output (short form of Verbo overrides the latter one)

VerbosityLevel	No	Default	Default, Debug, Verbose, Info, Warning, Error, Fatal	Verbosity level
VarTransform	No	None	–	List of variable transformations perf training, e.g., D_Background,P_Signal,G,N_AllCl Decorrelation, PCA-transformation, Normalisation, each for the given cl ('AllClasses' denotes all events of a class indication is given, 'All' is assu
H	No	False	–	Print method-specific help message
CreateMVAPdfs	No	False	–	Create PDFs for classifier outputs (background)
IgnoreNegWeightsInTraining	No	False	–	Events with negative weights are ig training (but are included for testing evaluation)
FitMethod	No	GA	GA, SA, MC, MCEvents, MINUIT, EventScan	Minimisation Method (GA, SA, and primary methods to be used; the oth introduced for testing purposes and
EffMethod	No	EffSel	EffSel, EffPDF	Selection Method
CutRangeMin	Yes	-1	–	Minimum of allowed cut range (set
CutRangeMax	Yes	-1	–	Maximum of allowed cut range (set
VarProp	Yes	NotEnforced	NotEnforced, FMax, FMin, FSmart	Categorisation of cuts

Configuration options for MVA method :

Configuration options reference for MVA method: *PDEFoam*

Option	Array	Default value	Predefined values	Description
V	No	False	–	Verbose output (short form of Verb overrides the latter one)
VerbosityLevel	No	Default	Default, Debug, Verbose, Info, Warning, Error, Fatal	Verbosity level
VarTransform	No	None	–	List of variable transformations per training, e.g., D_Background,P_Signal,G,N_AllC Decorrelation, PCA-transformation Normalisation, each for the given c ('AllClasses' denotes all events of a class indication is given, 'All' is ass
H	No	False	–	Print method-specific help messag
CreateMVAPdfs	No	False	–	Create PDFs for classifier outputs background)
IgnoreNegWeightsInTraining	No	False	–	Events with negative weights are ig training (but are included for testing performance evaluation)
SigBgSeparate	No	False	–	Separate foams for signal and bac
TailCut	No	0.001	–	Fraction of outlier events that are e foam in each dimension
VolFrac	No	0.0666667	–	Size of sampling box, used for den during foam build-up (maximum va equivalent to volume of entire foam

nActiveCells	No	500	–	Maximum number of active cells to the foam
nSampl	No	2000	–	Number of generated MC events p
nBin	No	5	–	Number of bins in edge histograms
Compress	No	True	–	Compress foam output file
MultiTargetRegression	No	False	–	Do regression with multiple targets
Nmin	No	100	–	Number of events in cell required t
MaxDepth	No	0	–	Maximum depth of cell tree (0=unli
FillFoamWithOrigWeights	No	False	–	Fill foam with original or boost weig
UseYesNoCell	No	False	–	Return -1 or 1 for bkg or signal like
DTLogic	No	None	None, GiniIndex, MisClassificationError, CrossEntropy, GiniIndexWithLaplace, SdivSqrtSplusB	Use decision tree algorithm to split
Kernel	No	None	None, Gauss, LinNeighbors	Kernel type used
TargetSelection	No	Mean	Mean, Mpv	Target selection method

Configuration options for MVA method :

Configuration options reference for MVA method: *TMlpANN*

Option	Array	Default value	Predefined values	Description
V	No	False	–	Verbose output (short form of Verbo overrides the latter one)
VerbosityLevel	No	Default	Default, Debug, Verbose, Info, Warning, Error, Fatal	Verbosity level
VarTransform	No	None	–	List of variable transformations perf training, e.g., D_Background,P_Signal,G,N_AllCl Decorrelation, PCA-transformation, Normalisation, each for the given c ('AllClasses' denotes all events of a class indication is given, 'All' is assu
H	No	False	–	Print method-specific help message
CreateMVAPdfs	No	False	–	Create PDFs for classifier outputs (background)
IgnoreNegWeightsInTraining	No	False	–	Events with negative weights are ig training (but are included for testing evaluation)
NCycles	No	200	–	Number of training cycles
HiddenLayers	No	N,N-1	–	Specification of hidden layer archite for number of variables; any intege used)
ValidationFraction	No	0.5	–	Fraction of events in training tree us validation
LearningMethod	No	Stochastic	Stochastic, Batch, SteepestDescent, RibierePolak, FletcherReeves, BFGS	Learning method

Configuration options for setup and tuning of specific fitter :

Configuration options reference for fitting method: *Simulated Annealing (SA)*

Option	Array	Default value	Predefined values	Description
MaxCalls	No	100000	–	Maximum number of minimisation
InitialTemp	No	1e+06	–	Initial temperature
MinTemp	No	1e-06	–	Mimimum temperature
Eps	No	1e-10	–	Epsilon
TempScale	No	1	–	Temperature scale
AdaptiveSpeed	No	1	–	Adaptive speed
TempAdaptiveStep	No	0.009875	–	Step made in each generation tem
UseDefaultScale	No	False	–	Use default temperature scale for minimisation algorithm
UseDefaultTemp	No	False	–	Use default initial temperature
KernelTemp	No	IncAdaptive	IncAdaptive, DecAdaptive, Sqrt, Log, Sin, Homo, Geo	Temperature minimisation algorith

Configuration options for setup and tuning of specific fitter :

Configuration options reference for fitting method: *Monte Carlo sampling (MC)*

Option	Array	Default value	Predefined values	Description
SampleSize	No	100000	–	Number of Monte Carlo events in t
Sigma	No	-1	–	If > 0: new points are generated ac around best value and with Sigma length
Seed	No	100	–	Seed for the random generator (0 t seeds)

Configuration options for setup and tuning of specific fitter :

Configuration options reference for fitting method: *TMinuit (MT)*

Option	Array	Default value	Predefined values	Description
ErrorLevel	No	1	–	TMinuit: error level: 0.5=logL fit, 1=
PrintLevel	No	-1	–	TMinuit: output level: -1=least, 0, +
FitStrategy	No	2	–	TMinuit: fit strategy: 2=best
PrintWarnings	No	False	–	TMinuit: suppress warnings
UseImprove	No	True	–	TMinuit: use IMPROVE
UseMinos	No	True	–	TMinuit: use MINOS
SetBatch	No	False	–	TMinuit: use batch mode
MaxCalls	No	1000	–	TMinuit: approximate maximum nu calls
Tolerance	No	0.1	–	TMinuit: tolerance to the function v minimum

Configuration options for setup and tuning of specific fitter :

Configuration options reference for fitting method: *Genetic Algorithm (GA)*

Option	Array	Default value	Predefined values	Description
PopSize	No	300	–	Population size for GA
Steps	No	40	–	Number of steps for convergence
Cycles	No	3	–	Independent cycles of GA fitting

SC_steps	No	10	–	Spread control, steps
SC_rate	No	5	–	Spread control, rate: factor is chan the rate
SC_factor	No	0.95	–	Spread control, factor
ConvCrit	No	0.001	–	Convergence criteria
SaveBestGen	No	1	–	Saves the best n results from each are included in the last cycle
SaveBestCycle	No	10	–	Saves the best n results from each included in the last cycle. The valu at least 1.0
Trim	No	False	–	Trim the population to PopSize afte fitness of each individual
Seed	No	100	–	Set seed of random generator (0 g seeds)

Configuration options given in the "PrepareForTrainingAndTesting" call; these options define the creation of the data sets and expert validation by TMVA :

Configuration options reference for class: *DataSetFactory*

Option	Array	Default value	Predefined values	Description
SplitMode	No	Random	Random, Alternate, Block	Method of picking training and tes (default: random)
MixMode	No	SameAsSplitMode	SameAsSplitMode, Random, Alternate, Block	Method of mixing events of differr dataset (default: SameAsSplitMoc
SplitSeed	No	100	–	Seed for random event shuffling
NormMode	No	EqualNumEvents	None, NumEvents, EqualNumEvents	Overall renormalisation of event-b used in the training (NumEvents: 1 per event, independently for sig background; EqualNumEvents: av per event for signal, and sum of w background equal to sum of weigl
nTrain_Signal	No	0	–	Number of training events of class = all)
nTest_Signal	No	0	–	Number of test events of class Sig all)
nTrain_Background	No	0	–	Number of training events of class (default: 0 = all)
nTest_Background	No	0	–	Number of test events of class Ba (default: 0 = all)
V	No	False	–	Verbosity (default: true)
VerboseLevel	No	Info	Debug, Verbose, Info	VerboseLevel (Debug/Verbose/Inf

Configuration options for the PDF class :

Configuration options reference for class: *PDF*

Option	Array	Default value	Predefined values	Description
NSmooth	No	0	–	Number of smoothing iterations for histograms
MinNSmooth	No	-1	–	Min number of smoothing iteration most data
MaxNSmooth	No	-1	–	Max number of smoothing iteratior least data

NAvEvtPerBin	No	50	−	Average number of events per PD
Nbins	No	0	−	Defined number of bins for the hist the PDF is created
CheckHist	No	False	−	Whether or not to check the source PDF
PDFInterpol	No	Spline2	Spline0, Spline1, Spline2, Spline3, Spline5, KDE	Interpolation method for reference Spline2 or KDE)
KDEtype	No	Gauss	Gauss	KDE kernel type (1=Gauss)
KDEiter	No	Nonadaptive	Nonadaptive, Adaptive	Number of iterations (1=non-adapt
KDEFineFactor	No	1	−	Fine tuning factor for Adaptive KDI multyply the width of the kernel
KDEborder	No	None	None, Renorm, Mirror	Border effects treatment (1=no trea renormalization, 3=sample mirrorir

Configuration options for Factory running :

Configuration options reference for class: *Factory*

Option	Array	Default value	Predefined values	Description
V	No	False	−	Verbose flag
Color	No	True	−	Flag for coloured screen output (de batch mode: False)
Transformations	No		−	List of transformations to test; form Transformations=I;D;P;U;G,D, for i decorrelation, PCA, Uniform and G followed by decorrelation transform
Silent	No	False	−	Batch mode: boolean silent flag inh from TMVA after the creation of the object (default: False)
DrawProgressBar	No	True	−	Draw progress bar to display traini evaluation schedule (default: True)
AnalysisType	No	Auto	Classification, Regression, Multiclass, Auto	Set the analysis type (Classificatio Multiclass, Auto) (default: Auto)

Page created on Mon Jul 29 00:06:19 2013 (© TMVA, 2006−2013)