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**Center of Excellence on Soft Computing and Intelligent Information Processing**

# A Report on **Available toolboxes**

**In artificial intelligence**

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## Research Objective and Methodology

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In this Research, we collect a number of useful toolboxes and softwares that can be used in artificial intelligence works.

MATLAB is an important software that have many useful toolboxes for different 2engineering fields in particular artificial intelligence, so we decided to collect a number of useful toolboxes in MATLAB and other software.

First we found a list of all toolboxes in MATLAB, then we separated those that were related to artificial intelligence field and found them in the internet. We search another available toolboxes, too. Finally, we categorized them into 10 sections as follows:

- Section 1: Fuzzy toolboxes,48
- Section 2: Neural network toolboxes,28
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- Section 5: Classification & Clustering toolboxes,16
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- Section 7: Data mining toolboxes,9
- Section 8: Pattern recognition toolboxes,3
- Section 9: Matrix computations,4
- Section 10: Other useful toolboxes,80

Each section includes a number of toolboxes .A short description about each toolbox and its link is provided.

Clearly, this research doesn't include all of available toolboxes but can be a good guide and we hope it will be helpful to students.

# Outline

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## Fuzzy toolboxes

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### 1. FMBPC

fuzzy model-based predictive control

### 2. Fuzzy Logic Toolbox

(sciFLT is a Fuzzy Logic Toolbox for scilab)

Link: <https://atoms.scilab.org/toolboxes/sciFLT>

### 3. PSO Fuzzy Modeler for MATLAB

Creates the fuzzy model from the available data automatically using Particle Swarm Optimization (PSO) algorithm.

Link: <http://sourceforge.net/projects/fuzzymodeler/>

### 4. GFS(Generalized Fuzzy System)

is a toolbox that facilitates the design process of Fuzzy Logic System that may use Type-1 & Type-2 Fuzzy Sets.

Link: <http://sourceforge.net/projects/gfstool/>

### 5. Fuzzy Logic Toolbox

Design and simulate fuzzy logic systems

Fuzzy Logic Toolbox™ provides functions, apps, and a Simulink® block for analyzing, designing, and simulating systems based on fuzzy logic.

It is available in matlab

### 6. C++ Fuzzy Logic Programming Library

C++ Fuzzy Logic Programming Library - For problem solving in the fuzzy logic domain. It has an object oriented API well suited to C++ syntax for direct inclusion in source code. Portable to platforms that support the C++ STL.

Link: <http://sourceforge.net/projects/cpp-fuzzy-logic/?source=directory>

## 7. FID

Fuzzy decision tree/forest. FID is a program which generates a fuzzy logic-based decision tree, from fuzzy or symbolic data. The tree can then be used to classify data, with unknown classification, using several different methods of inference..

Link: <http://www.cs.umsl.edu/~janikow/fid/index.html>

## 8. FingramsGenerator

Fuzzy Inference-grams Generator. Stand-alone software tool able to generate and visualize fingrams. Fingrams show graphically the interaction between rules at the inference level in terms of co-fired rules, i.e., rules fired at the same time by a given input. The analysis of fingrams offers many possibilities: measuring the comprehensibility of fuzzy systems, detecting redundancies and/or inconsistencies among fuzzy rules, identifying the most significant rules, etc.

Link : <http://sourceforge.net/p/fingrams/wiki/Home/>

## 9. FIS

Matlab Software Tool For Neuro-Fuzzy Identification And Data Analysis.

Link: <http://www.ulb.ac.be/di/map/gbonte/software/Local/FIS.html>

## 10. FisPro

Fuzzy Inference System Design and Optimization. An open source portable software for designing and handling fuzzy inference systems FisPro(Fuzzy Inference System Professional) allows to create fuzzy inference systems and to use them for reasoning purposes, especially for simulating a physical or biological system

Link : [http://www7.inra.fr/mia/M/fispro/fispro2013\\_en.html](http://www7.inra.fr/mia/M/fispro/fispro2013_en.html)

## 11. FrIDA

Free Intelligent Data Analysis Toolbox. A graphical user interface for several data analysis programs (available as command line programs written in C).

Link: <http://www.borgelt.net/frida.html>

## 12. Fuzzme

Fuzzy Models of Multiple-Criteria Evaluation. A tool for creating fuzzy models of multiple-criteria evaluation and decision making.

Link : <http://fuzzme.wz.cz/>

## 13. FuzzyToolkitUoN

A custom framework for working with Type 1 Fuzzy Logic, produced by the University of Nottingham IMA Group.

Link: <http://cran.r-project.org/web/packages/FuzzyToolkitUoN/index.html>

## 14. GUAJE

Generating Understandable and Accurate fuzzy models in a Java Environment. GUAJE stands for Generating Understandable and Accurate fuzzy models in a Java Environment.

Link: <http://sourceforge.net/projects/guajefuzzy/>

## 15. JuzzyOnline

An Online Toolkit for the Design, Implementation, Execution and Sharing of Type-1 and Type-2 Fuzzy Logic Systems.

Link : <http://ritweb.cloudapp.net:8080/JuzzyOnline/juzzy>

## 16. Kappalab

Kappalab, which stands for "laboratory for capacities", is an S4 tool box for capacity (or non-additive measure, fuzzy measure) and integral manipulation on a finite setting. It contains routines for handling various types of set functions such as games or capacities. It can be used to compute several non-additive integrals: the Choquet integral, the Sugeno integral, and the symmetric and asymmetric Choquet integrals. An analysis of capacities in terms of decision behavior can be performed through the computation of various indices such as the Shapley value, the interaction index, the orness degree, etc. The well-known Möbius transform, as well as other equivalent representations of set functions can also be computed. Kappalab further contains seven capacity identification routines: three least squares based approaches, a method based on linear programming, a maximum entropy like method based on variance minimization, a minimum distance approach and an unsupervised

approach grounded on parametric entropies. The functions contained in Kappalab can for instance be used in the framework of multicriteria decision making or cooperative game theory.

Link : <http://cran.r-project.org/web/packages/kappalab/index.html>

### 17. Type2-FL

Free Fuzzy Logic Software for Matlab for implementing and designing type-1 and type-2 FLSs.

The software has been prepared as a collection of M-files for Matlab ® (a registered trademark of The MathWorks, Inc.). It is in six sections: general type-2 fuzzy logic systems, interval type-2 fuzzy logic systems, type-1 fuzzy logic systems, type-reduction, interval approach to fuzzistics, and novel weighted averages.

Link : <http://sipi.usc.edu/~mendel/software/>

### 18. UNFUZZY

A tool for the design, simulation and analysis of Fuzzy Logic Systems

Link : <http://sourceforge.net/projects/unfuzzy/?source=directory>

### 19. XFuzzy

A development toolbox for fuzzy-inference-based systems, which is composed of several options that cover the different stages of the fuzzy system design process, from their initial description to the final implementation

Link : [http://www2.imse-cnm.csic.es/Xfuzzy/Xfuzzy\\_3.0/index.html](http://www2.imse-cnm.csic.es/Xfuzzy/Xfuzzy_3.0/index.html)

### 20. TP-Tool

A free matlab toolbox for polytop or TS fuzzy modeling and control design via LMIs and PDC framework

Link : <http://www.tp-control.hu/index.php/About>

### 21. FLINSTONES

Fuzzy LINGuisTic DeciSion TOols eNhacemEnt Suite. A software tool to solve linguistic decision making problems.

Link : <http://serezade.ujaen.es/flintstones/?q=description>

### 22. Fuzzy Logic Tools

A C++ framework for storage, analysis and design of fully general multiple-input multiple-output Takagi-Sugeno fuzzy control systems, without constraints in the order of either the inputs or the output vectors.

Link : <http://sourceforge.net/projects/fuzzylogictools/>

### 23. KNIME

Konstanz Information Miner: KNIME is a modular, open platform for data integration, processing, analysis, and exploration.

Link : <http://www.knime.org/>

### 24. GeoNetWeaver

Decision support tool which allows to design knowledge based systems with a fuzzy logic inference mechanism

Link : <http://www.rules-of-thumb.com/downloads/>

### 25. Febrl

**Febrl:** Freely Extensible Biomedical Record Linkage includes a comprehensive graphical user interface based on PyGTK for facilitating the record linkage for users that have no experience in the Python programming language.

Febrl (Freely Extensible Biomedical Record Linkage) does data standardisation (segmentation and cleaning) and probabilistic record linkage ("fuzzy" matching) of one or more files or data sources which do not share a unique record key or identifier.

Link : <http://sourceforge.net/projects/febrl/>

### 26. FuzzyCOPE

FuzzyCOPE is a free toolbox for teaching, research and intelligent system development.

Link : <http://software.watts.net.nz/FuzzyCOPE3/>

### 27. OmegaT

A free and open source multiplatform Computer Assisted Translation tool with fuzzy matching, etc.

Link : <http://www.omegat.org/en/omegat.html>

### 28. FURIA



### Fuzzy Unordered Rule Induction Algorithm

FURIA is short for Fuzzy Unordered Rule Induction Algorithm. FURIA extends the well-known RIPPER algorithm, a state-of-the-art rule learner, while preserving its advantages, such as simple and comprehensible rule sets. In addition, it includes a number of modifications and extensions. In particular, FURIA learns fuzzy rules instead of conventional rules and unordered rule sets instead of rule lists. Moreover, to deal with uncovered examples, it makes use of an efficient rule stretching method. Experimental results show that FURIA significantly outperforms the original RIPPER, as well as other classifiers such as C4.5, in terms of classification accuracy.

Link : <http://www.uni-marburg.de/fb12/kebi/research/software/furia>

### 29. FR3

Fuzzy Round Robin Ripper: The FR3 algorithm is a pairwise classifier which is based upon the Ripper algorithm (by Cohen) in a pairwise learning environment, also called R3 (by Fürnkranz). The FR3 system extends the R3 approach by fuzzy techniques and structured preferences. Besides the improvement in classification accuracy in comparison to R3, the FR3 is able to express conflicts and ignorances in a classification decision in an even more faithful way.

Link : <http://www.uni-marburg.de/fb12/kebi/research/software/FR3>

### 30. Evolving Fuzzy Pattern Trees

Implementation of the Evolving Fuzzy Pattern Trees for Binary Classification on Data Streams, the development is done for MOA and WEKA.

Link : [http://www.uni-marburg.de/fb12/kebi/research/fuzzy\\_pattern\\_tree](http://www.uni-marburg.de/fb12/kebi/research/fuzzy_pattern_tree)

### 31. Fuzzy Pattern Trees for Classification and Regression

Implementation of Fuzzy Pattern Trees for the WEKA machine learning framework.

Link : [http://www.uni-marburg.de/fb12/kebi/research/fuzzy\\_pattern\\_tree](http://www.uni-marburg.de/fb12/kebi/research/fuzzy_pattern_tree)

### 32. fugeR

FUZZY GENetic, a machine learning algorithm to construct prediction model based on fuzzy logic

link : <http://cran.r-project.org/web/packages/fugeR/>

THEY HAVE NO DOWNLOAD LINK

33. E-Fuzz

Developer toolkit for designing embedded fuzzy systems.

Link : [http://link.springer.com/chapter/10.1007%2F978-3-642-17569-5\\_23](http://link.springer.com/chapter/10.1007%2F978-3-642-17569-5_23)

34. FUAT

A fuzzy clustering analysis tool.

Link : <http://www.sciencedirect.com/science/article/pii/S0957417412007543>

35. FuzzyCalculusCORE

Software package and API in MATLAB for working with fuzzy algebras.

Link

<http://scitation.aip.org/content/aip/proceeding/aipcp/10.1063/1.3271635> :

36. FuzzyProlog

A new approach using soft constraints propagation.

Link : <http://www.sciencedirect.com/science/article/pii/S0165011403004494>

37. Fuzzystudio

An on-line tool for modelling and simulating fuzzy systems. The tool aims to facilitate the fuzzy systems building process focusing on the learning of fuzzy systems by undergraduate students.

Link : <http://bsi.ceavi.udesc.br:8082/FuzzyStudio/>

38. IT2FLS

Computational intelligence software for interval type-2 fuzzy logic.

Link : <http://onlinelibrary.wiley.com/doi/10.1002/cae.20522/abstract>

39. KIRQ

Contradictions in fsQCA.

Link : <http://link.springer.com/article/10.1007%2Fs11135-012-9694-3>

40. Matlab-FLT

Fuzzy Logic Toolbox for analyzing, designing, and simulating systems based on fuzzy logic.

Link : <http://www.mathworks.com/products/fuzzy-logic/index.html>

41. RFUZZY:

A fuzzy logic programming tool that represents truth values using real numbers from the unit interval.

Link : <http://www.sciencedirect.com/science/article/pii/S0020025510003610>

42. Rfuzzy-toolbox

Type-1 functions - Interval Type-2 and Non-Stationary specific functions.

Link : [http://www.cs.nott.ac.uk/~jmg/fuzzy-v1\\_7.r](http://www.cs.nott.ac.uk/~jmg/fuzzy-v1_7.r)

43. SAMT

A new method for semi-automatic fuzzy training and its application in environmental modeling.

Link : <http://www.sciencedirect.com/science/article/pii/S1364815211001782>

44. Vignettes

Generalized and customizable sets available for R through the sets package.

Link : <http://cran.r-project.org/web/packages/sets/vignettes/>

45. VisualFCM

A software tool for the development, simulation and analysis of FCM.

Link : <http://www.sciencedirect.com/science/article/pii/S0957417412000917>

46. VisualFLOPER

A Practical Management of Fuzzy Truth-Degrees Using FLOPER.

Link : [http://link.springer.com/chapter/10.1007%2F978-3-642-16289-3\\_4](http://link.springer.com/chapter/10.1007%2F978-3-642-16289-3_4)

47. XTRIG

Fuzzy qualitative trigonometry

Link : <http://www.sciencedirect.com/science/article/pii/S0888613X09001364>

48. ASAFES2

A neurofuzzy function approximator, which combines Takagi-Sugeno fuzzy reasoning method with stochastic reinforcement learning.

Link : <http://www.sciencedirect.com/science/article/pii/S0165011495002960>

## Neural network toolboxes

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### Matlab toolboxes

#### 1. Net lab

Neural network algorithms

Link:

<http://www.aston.ac.uk/eas/research/groups/ncrg/resources/netlab/downloads/>

#### 2. NNCTRL

Design and simulation of control systems based on neural networks

The NNCTRL toolkit is a set of tools for design and simulation of control systems based on neural networks. The toolkit is an add-on to the NNSYSID toolbox, which is a toolbox for system identification with neural networks.

Link: <http://www.iau.dtu.dk/research/control/nnctrl.html>

#### 3. NNSYSID

Neural net based identification of nonlinear dynamic systems

The NNSYSID toolbox is a set of MATLAB tools for neural network based identification of nonlinear dynamic systems. The toolbox contains a number of m and MEX-files for training and evaluation of multilayer perceptron type neural networks within the MATLAB environment.

Link: <http://www.iau.dtu.dk/research/control/nnsysid.html>

#### 4. BNNs (Biological Neural Networks)

Is a free open source software for simulating models of brain and central nervous system, based on MATLAB computational platform.

Link: <http://www.ymer.org/amir/software/biological-neural-networks-toolbox/>

#### 5. RBF

Radial basis function neural networks. Implements a variety of methods based on subset selection and ridge regression to control model complexity and regression trees to generate RBF centers and radii.

Link: <http://www.anc.ed.ac.uk/rbf/rbf.html>

#### 6. PCNN

Pulse coupled neural networks. This toolbox contains Matlab files that implement the image fusion algorithms based on Pulse Coupled Neural Networks(PCNN).

Link: [http://www.quxiaobo.org/software/software\\_PCNN.html](http://www.quxiaobo.org/software/software_PCNN.html)

#### 7. LMAM-OLMAM

Levenberg Marquardt with Adaptive Momentum algorithm for training feedforward neural networks

The LMAM-OLMAM Matlab Toolbox is a set of Matlab routines that implement the Levenberg Marquardt with Adaptive Momentum (LMAM) and the Optimized Levenberg Marquardt with Adaptive Momentum (OLMAM) algorithms.

Link:

[http://www.mathworks.com/matlabcentral/newsreader/view\\_thread/39484](http://www.mathworks.com/matlabcentral/newsreader/view_thread/39484)

#### 8. MATLAB Neural Net Toolbox

A comprehensive environment for neural network research, design, and simulation within MATLAB

Neural Network Toolbox™ provides functions and apps for modeling complex nonlinear systems that are not easily modeled with a closed-form equation

Link: <http://www.mathworks.com/products/neural-network/index.html>

Others:

#### 9. NeuroIntelligence

Is a neural networks software application designed to assist neural network, data mining, pattern recognition, and predictive modeling experts in solving real-world problems.

Link: <http://www.alyuda.com/neural-networks-software.htm>

### 10. ANN Toolbox

This represents a toolbox for artificial neural networks, based on "Matrix ANN" book

Link: [https://atoms.scilab.org/toolboxes/ANN\\_Toolbox](https://atoms.scilab.org/toolboxes/ANN_Toolbox)

### 11. Lolimot

A fast neural network - Local Linear Model Tree

Link: <https://atoms.scilab.org/toolboxes/lolimot>

### 12. NuClass7

Freeware for fast development, validation, and application of neural and conventional classifiers including multilayer perceptron, functional link net, piecewise linear net, nearest neighbor classifier, self-organizing map.

Link: [http://www.uta.edu/faculty/manry/new\\_software.html](http://www.uta.edu/faculty/manry/new_software.html)

### 13. Sciengy RPF

a free application for data mining with self-organizing neural networks, with a convenient user interface and ability to work with text and data files. (Windows only)

Link: <http://sourceforge.net/projects/sciengyrpf/>

### 14. Sharky Neural Network

free software for playing with neural networks classification.

Link: [http://sharktime.com/us\\_SharkyNeuralNetworkDownload.html](http://sharktime.com/us_SharkyNeuralNetworkDownload.html)

### 15. The NeuroX

software is easy-to-use and intuitive, does not require any prior knowledge of neural networks, and is integrated seamlessly with Microsoft Excel. NeuroXL brings increased precision and accuracy to a wide variety of tasks, including: **cluster analysis, stock price prediction, sales forecasting, sports prediction** and much more

Link: <http://www.neuroxl.com/>

### 16. GMDH Shell

Creates classifiers based on GMDH-type neural networks.

GMDH Shell is a simple yet powerful forecasting software for business based on artificial neural networks. It allows anyone to easily and accurately create forecasts.

Link: <https://www.gmdhshell.com/>

### 17. Biological Neural Networks (BNNs) Toolbox for MATLAB

is a free open source software for simulating models of brain and central nervous system, based on MATLAB computational platform. As the name of the toolbox implies, the main goal of this package is to provide users a set of integrated tools to create models of biological neural networks and simulate them easily, without the need of extensive coding. Users can create and simulate a huge network of spiking neurons in less than 10 lines of code (or even in one line, if they give all arguments to the main function) using predefined library functions. It is also possible to create and add new models to the library easily, using template library items or using special tools provided for this reason. Refer to documentation for more information about this toolbox.

**Link** : <http://www.ymer.org/amir/software/biological-neural-networks-toolbox/>

### 18. DeepLearnToolbox

Matlab/Octave toolbox for deep learning. Includes Deep Belief Nets, Stacked Autoencoders, Convolutional Neural Nets, Convolutional Autoencoders and vanilla Neural Nets. Each method has examples to get you started.

Link : <https://github.com/rasmusbergpalm/DeepLearnToolbox>

### 19. NeuroSolutions

NeuroSolutions for MATLAB neural network toolbox is a MATLAB™ add-in that is easy-to-use and intuitive. It leverages the industry leading power of NeuroSolutions neural networks and artificial intelligence inside MATLAB™. The software allows you to concentrate on solving your problem without having to spend many hours persuing neural network literature and developing the algorithms yourself.

**Link** : <http://www.neurosolutions.com/products/nsmatlab/>



## 20. Nnet

A neural network package for Octave! Goal is to be as compatible as possible to the one of MATLAB(TM).

Link : [http://www.plexso.com/61\\_octave/index.html](http://www.plexso.com/61_octave/index.html)

## 21. OXlearn - a Matlab-based Neural Network Simulator

OXlearn is a [free](#) neural network simulation software that enables you to build, train, test and analyse connectionist neural network models. Because OXlearn is implemented as a [Matlab toolbox](#) you can run it on all operation systems (Windows, Linux, MAC, etc.), provided you have a recent version of MATLAB installed (R2006b or later). This also has the additional advantage that it makes it easy to 'look under the hood' so you can inspect the calculations performed by the program or adapt the program to your specific needs. A [compiled version](#) (172Mb) that does not require access to Matlab is also available, currently for Windows XP only. In its current version OXlearn supports multi-layer feed-forward networks and simple recurrent networks. For more detailed information please consult the [OXlearn manual](#).

Link : <http://psych.brookes.ac.uk/oxlearn/>

## 22. EasyNN-plus

The program can build artificial neural network easily. The neural weights can be obtained using the data given as text, CSV, or images. Training, validation, and simulation of the NN is easy with a few button pushes

Link : <http://easynn-plus.software.informer.com/>

## 23. ConvNet

Convolutional Neural Networks for Matlab, including Invariant Backpropagation algorithm (IBP). Has versions for GPU and CPU, written on CUDA, C++ and Matlab

Link : <https://github.com/sdemyanov/ConvNet>

#### 24. Sharky Neural Network

Neural network classification results live view (like a movie). Free software for playing with neural networks classification

Link : <http://sharky-neural-network.software.informer.com/>

#### 25. NeuraLog

NeuraLog's simple interface, driven by workflow wizards and automation.

Link : <http://neuralog.software.informer.com/>

#### 26. NeuralLab

It is a simulator to design and train artificial neural networks.

Link : <http://neurallab.software.informer.com/>

#### 27. WEKA Classification Algorithms

This project provides implementation for a number of artificial neural network (ANN) and artificial immune system (AIS) based classification algorithms for the WEKA (Waikato Environment for Knowledge Analysis) machine learning workbench

Link : <http://weka.classalgos.sourceforge.net/>

#### 28. NeurophStudio

Convolutional neural networks and image preprocessing tools!

Link : <http://neuroph.sourceforge.net/index.html>

# Optimization toolboxes

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## Matlab toolboxes

### 1. SolvOpt

solver for local optimization problems

The program SolvOpt (Solver for local optimization problems) is concerned with minimization or maximization of nonlinear, possibly non-smooth objective functions and solution of nonlinear minimization problems taking into account constraints by the method of exact penalization.

Link: <http://www.uni-graz.at/imawww/kuntsevich/solvopt/>

### 2. GEATbx

Genetic and Evolutionary Algorithm Toolbox for use with MatlabT

- powerful **optimization tool** using evolutionary algorithms (genetic algorithms, evolution strategies)
- applicable to a **broad range** of problems and systems
- **comprehensive** implementation of evolutionary algorithms for Matlab

Link: <http://www.geatbx.com/features.html>

### 3. Global Optimization Toolbox

provides methods that search for global solutions to problems that contain multiple maxima or minima. It includes global search, multistart, pattern search, genetic algorithm, and simulated annealing solvers.

Link: <http://www.mathworks.com/products/global-optimization/index.html;jsessionid=6797d4a4391610c17f27930c5ea9>

Others:

### 4. SolveXL

Is an add-in for Microsoft Excel® which uses evolutionary algorithms to solve complex optimization problems. The application is written in C++

and exploits a COM interface to interact with Microsoft Excel®. A user friendly Wizard with built-in help allows users to configure the tool easily and to perform optimizations. **SolveXL** goes much further than many other commercial products of this type and implements many types of single and multiple-objective genetic algorithms.

Link: <http://www.solvexl.com/>

5. **JSWARM**

is a particle swarm optimization (PSO) package written in Java. Designed to require minimum effort to use (out of the box) while also highly modular.

Link: <http://sourceforge.net/projects/jswarm-psy/>

6. **Nature Inspired Toolbox**

Is a software tool meant to solve optimization problems developed in MATLAB environment. Presently, this release is only based on various PSO algorithms and coming versions will include ACO, GAs, BBO.

Link: <http://sourceforge.net/projects/nitool/>

7. **ECF**

Is a framework intended for application of any type of evolutionary computation (GA/GP, DE, Clonalg, ES, PSO, ABC, GAn, local search...).

Link: <http://sourceforge.net/projects/ecfproject/?source=directory>

8. **OptPBN**

An optimization toolbox for probabilistic Boolean networks

link : <http://sourceforge.net/projects/optpbn/>

Section 2-1:

Genetic algorithm toolboxes:

9. **GAOT**

genetic algorithm optimization

Link: <http://www.daimi.au.dk/~pmn/Matlab/dochome/toolbox/GAOT/gaotindex.html>

10. **Genetic Algorithm**

The Genetic Algorithm Toolbox for MATLAB ® was developed at the Department of Automatic Control and Systems Engineering of The University of Sheffield, UK, in order to make GA's accessible to the

control engineer within the framework of a existing computer-aided control system design package.

Link:<http://codem.group.shef.ac.uk/index.php/ga-toolbox>

### 11. GPLAB

a Genetic Programming toolbox for MATLAB

GPLAB includes most of the traditional features usually found in GP tools. It is able to accomodate a wide variety of usages, but its highly modular structure makes it a particularly versatile, generalist and easily extendable tool, highly suited for testing new elements and techniques in GP research

Link:<http://gplab.sourceforge.net/>

### 12. GeneHunter

(GeneHunter is a powerful software solution for optimization problems which utilizes a state-of-the-art genetic algorithm methodology)

Link: <http://www.wardsystems.com/genehunter.asp>

### 13. JCLEC

JCLEC is a software system for Evolutionary Computation (EC) research, developed in the Java programming language. It provides a high-level software framework to do any kind of Evolutionary Algorithm (EA), providing support for genetic algorithms (binary, integer and real encoding), genetic programming (Koza's style, strongly typed, and grammar based) and evolutionary programming.

Link : <http://jclec.sourceforge.net/>

### 14. lil-gp

Genetic Programming System

link : <http://garage.cse.msu.edu/software/lil-gp/>

## Image and signal processing toolboxes

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### 1. FracLab

fractal analysis for signal processing

FracLab is a general purpose signal and image processing toolbox based on fractal and multifractal methods.

Link: <http://fraclab.saclay.inria.fr/>

### 2. WarpTB

frequency-warped signal processing

WarpTB is a MATLAB toolbox for frequency-warped signal processing. Practically any signal processing algorithm can be warped by replacing all the unit delay elements by first order allpass blocks.

Link: <http://legacy.spa.aalto.fi/software/warp/>

### 3. PyrTools

multi-scale image processing

Matlab source code for multi-scale image processing. Includes tools for building and manipulating Laplacian pyramids, QMF/Wavelets, and steerable pyramids. Data structures are compatible with the Matlab wavelet toolbox, but the convolution code (in C) is faster and has many boundary-handling options

Link: <http://www.cns.nyu.edu/~eero/software.php>

### 4. ICALAB

signal and image processing using ICA and higher order statistics

Link: <http://www.bsp.brain.riken.jp/ICALAB/ICALABSignalProc/>

### 5. SIP

Scilab Image Processing Toolbox

SIP stands for Scilab Image Processing toolbox. SIP intends to do imaging tasks such as filtering, blurring, edge detection, thresholding, histogram manipulation, segmentation, mathematical morphology, color image processing, etc.

Link: <https://atoms.scilab.org/toolboxes/SIP>

## Classification & clustering toolboxes

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### 1. SVM

implements support vector machines

Link: <http://sourceforge.net/projects/svmclassmatlab/>

### 2. SSVM

smooth support vector machine for solving machine learning problems

SSVM uses a smooth unconstrained optimization reformulation of the traditional quadratic program. It is solved by a very fast Newton-Armijo algorithm and has been extended to nonlinear separation surfaces by using nonlinear kernel techniques

Link: <http://research.cs.wisc.edu/dmi/svm/ssvm/>

### 3. SOM

self-organizing map

This is the homepage of SOM Toolbox, a function package for Matlab 5 implementing the Self-Organizing Map (SOM) algorithm and more.

Link: <http://www.cis.hut.fi/projects/somtoolbox/>

### 4. PSVM

proximal support vector machine for solving machine learning problems

Instead of a standard support vector machine that classifies points by assigning them to one of two disjoint half-spaces, PSVM classifies points by assigning them to the closest of two parallel planes.

Link: <http://research.cs.wisc.edu/dmi/svm/psvm/>

### 5. NSVM

newton support vector machine for solving machine learning problems

The NSVM uses an implicit Lagrangian formulation of a support vector machine classifier that led to a highly effective iterative scheme.



Link: <http://research.cs.wisc.edu/dmi/svm/nsvm/>

## 6. LSVM

Lagrangian support vector machine for machine learning problems

LSVM is a fast technique for training support vector machines (SVMs), based on a simple iterative approach.

Link: <http://research.cs.wisc.edu/dmi/lsvm/>

## 7. LPSVM

Newton method for LP support vector machine for machine learning problems

LPSVM uses a fast Newton method that suppresses input space features. This stand-alone method can handle classification problems in very high dimensional spaces and generates a classifier that depends on very few input features. For more information

Link: <http://research.cs.wisc.edu/dmi/svm/lpsvm/>

## 8. GHSOM

growing hierarchical self-organizing map

Link: <http://www.ofai.at/~elias.pampalk/ghsom/download.html>

## 9. Clustering

Cluster analysis

Link: <https://atoms.scilab.org/toolboxes/CLUSTER>

## 10. Y\_FCMC

Yashil's Fuzzy C-Means Clustering MATLAB Toolbox

This MATLAB Toolbox contains M-files for the following clustering algorithms

- Fuzzy C-Means Clustering (FCM) => Yf\_FCMC1.m
- Possibilistic C-Means Clustering (PCM) => Yf\_PCMC1.m
- Fuzzy-Possibilistic C-Means Clustering (FPCM) => Yf\_FPCM1.m

Link: [http://ce.sharif.edu/~m\\_amiri/project/yfcmc/](http://ce.sharif.edu/~m_amiri/project/yfcmc/)

### 11. Stream Clustering and Stream Classification

Link : <http://www.uni-marburg.de/fb12/kebi/research/software/streamClus>

### 12. Nifti

a tool for the integration of fMRI data in WEKA, and thereby provide a way to access a broad collection of recent analysis tools for data classification.

Link : [http://www.uni-marburg.de/fb12/kebi/research/software/nifti\\_importer](http://www.uni-marburg.de/fb12/kebi/research/software/nifti_importer)

### 13. Vowpal Wabbit (Fast Learning)

parallel learning for classification, regression, and more.

Link : [https://github.com/JohnLangford/vowpal\\_wabbit/wiki](https://github.com/JohnLangford/vowpal_wabbit/wiki)

### 14. CARP

Software for Fishing Out Good Clustering Algorithms

Link : <http://mloss.org/software/view/248/>

### 15. ML-Flex

A Flexible Toolbox for Performing Classification Analyses In Parallel

Link : <http://mlflex.sourceforge.net/>

### 16. FSPS - A spike sorting software

A tool fast and robust online classification of single neuron activity.

Link : <http://www.spikesorting.com/>

## Machine learning

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### 1. The SHOGUN Machine Learning Toolbox

focus is on large scale kernel methods and especially on Support Vector Machines (SVM). It comes with a generic interface for kernel machines and features 15 different SVM implementations that all access features in a unified way via a general kernel framework or in case of linear SVMs so called "DotFeatures", i.e., features providing a minimalistic set of operations (like the dot product).

Link : <http://mloss.org/software/view/2/>

### 2. GPML

Gaussian Processes for Machine Learning Toolbox. The GPML toolbox implements approximate inference algorithms for Gaussian processes such as Expectation Propagation, the Laplace Approximation and Variational Bayes for a wide class of likelihood functions for both regression and classification. It comes with a big algebra of covariance and mean functions allowing for flexible modeling.

Link : <http://mloss.org/software/view/263/>

### 3. SSA

Stationary Subspace Analysis (SSA) is a general purpose algorithm for the explorative analysis of non-stationary data, i.e. data whose statistical properties change over time. SSA helps to detect, characterize and visualize temporal changes in complex high-dimensional data sets.

**Link :** <http://mloss.org/software/view/292/>

### 4. GPLP

A Local and Parallel Computation Toolbox for Gaussian Process Regression

Link : <http://mloss.org/software/view/395/>

5. [glm-ie](#)

Generalised Linear Models Inference & Estimation Toolbox. The glm-ie toolbox contains scalable estimation routines for GLMs (generalised linear models) and SLMs (sparse linear models) as well as an implementation of a scalable convex variational Bayesian inference relaxation  
link : <http://www.mloss.org/software/view/269/>

6. [Sally](#)

A Tool for Embedding Strings in Vector Spaces. Sally is a small tool for mapping a set of strings to a set of vectors. This mapping is referred to as embedding and allows for applying techniques of machine learning and data mining for analysis of string data. Sally can applied to several types of string data, such as text documents, DNA sequences or log files, where it can handle common formats such as directories, archives and text files of string data.

**Link :** <http://www.mlsec.org/sally/download.html>

7. [BudgetedSVM](#)

A Toolbox for Scalable SVM Approximations. We present BudgetedSVM, a C++ toolbox containing highly optimized implementations of three recently proposed algorithms for scalable training of Support Vector Machine (SVM) approximators: Adaptive Multi-hyperplane Machines (AMM), Budgeted Stochastic Gradient Descent (BSGD), and Low-rank Linearization SVM (LLSVM).

**Link :** <http://www.dabi.temple.edu/budgetedsvm/download.html>

8. [Manopt](#)

a Matlab Toolbox for Optimization on Manifolds

**Link :** <http://www.manopt.org/>

9. [ooDACE Toolbox](#)

A Flexible Object-Oriented Kriging Implementation. (*Design and Analysis of Computer Experiments*) is a powerful and versatile Matlab toolbox for building kriging surrogate models of a given data set

**link :** [http://sumo.intec.ugent.be/?q=ooDACE#oodace\\_download](http://sumo.intec.ugent.be/?q=ooDACE#oodace_download)

#### 10. KEEL

**Software as an Educational Tool:** This suite provides with an educational module well suited to be used in Data Mining, Machine Learning and Knowledge Discovery in Databases courses.

Link : <http://www.keel.es/>

#### 11. DeeBNet (Deep Belief Networks) toolbox

Deep Belief Networks (DBNs) are deep architectures that use stack of Restricted Boltzmann Machines (RBM) to create a powerful generative model using training data. DBNs have many ability like feature extraction and classification that are used in many application like image processing, speech processing and etc.

Link : <http://ceit.aut.ac.ir/~keyvanrad/DeeBNet%20Toolbox.html>

## Data mining toolboxes

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### 1. ADaM

Algorithm Development and Mining toolkit

The Algorithm Development and Mining System (ADaM) is used to apply data mining technologies to remotely-sensed and other scientific data.

Link : <http://projects.itsc.uah.edu/datamining/adam/>

### 2. AlphaMiner

open source data mining platform that provides the best cost-and-performance ratio for data mining applications.

Link : <http://www.eti.hku.hk/alphaminer/>

### 3. Rattle

A Graphical User Interface for Data Mining using R

**Rattle** (the R Analytical Tool To Learn Easily) presents statistical and visual summaries of data, transforms data into forms that can be readily modelled, builds both unsupervised and supervised models from the data, presents the performance of models graphically, and scores new datasets.

Link : <http://rattle.togaware.com/>

### 4. ESOM

The Databionic ESOM Tools is a suite of programs to perform data mining tasks like clustering, visualization, and classification with Emergent Self-Organizing Maps (ESOM).

Link : <http://databionic-esom.sourceforge.net/>

### 5. CMSR Data Miner Suite

provides an integrated environment for predictive modeling, segmentation, data visualization, statistical data analysis, and rule-based model evaluation. It also provides integrated analytics and rule-engine environment for advanced power users.

Link : <http://www.roselladb.com/starprobe.htm>

#### 6. BioWEKA

Knowledge Discovery and Data Analysis in Biology. The aim of the BioWeka project is to add bioinformatics functionalities such as e.g. alignments to the popular machine learning framework Weka.

Link : <http://sourceforge.net/projects/bioweka/>

#### 7. DataMelt

is a free mathematics software for scientists, engineers and students. It can be used for numeric computation, statistics, symbolic calculations, data analysis and data visualization.

Link : <http://jwork.org/dmelt/index.php?id=install>

#### 8. Orange

Data Mining Toolbox in Python. Open source data visualization and analysis for novice and experts. Data mining through visual programming or Python scripting. Components for machine learning. Add-ons for bioinformatics and text mining

**Link :** <http://orange.biolab.si/>

#### 9. NIP

A tool to handle imperfect information in Data Sets. This tool allows to include various types of imperfection to datasets of known formats of literature and/or custom formats defined by the user.

Link : <http://heurimind.inf.um.es/NIP/>

## Pattern recognition toolboxes

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### 1. TEMPLAR

wavelet-based template learning and pattern classification

Matlab code for wavelet-based template learning and pattern classification using TEMPLAR.

Link: <http://dsp.rice.edu/software/templar>

### 2. Statistical Pattern Recognition

pattern recognition methods

Link: <http://cmp.felk.cvut.cz/cmp/software/stprtool/>

### 3. PRTools

pattern recognition. Matlab Pattern Recognition Toolbox for representation and generalization

Link: <http://prtools.org/software/>



# Matrix computations

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## 1. EigTool

graphical tool for nonsymmetric eigenproblems

EigTool is a free MATLAB package for computing pseudospectra of dense and sparse matrices. It also provides a graphical interface to MATLAB's built-in eigs routine (ARPACK) for large-scale eigenvalue computations.

Link: <http://www.cs.ox.ac.uk/projects/pseudospectra/eigtool/>

## 2. Matrix Computation

constructing test matrices, computing matrix factorizations, visualizing matrices, and direct search optimization

Link: <http://www.ma.man.ac.uk/~higham/mctoolbox/>

## 3. DMsuite

differentiation matrix suite

This is a MATLAB software suite, created by JAC Weideman and SC Reddy, consisting of seventeen functions for solving differential equations by the spectral collocation (a.k.a. pseudospectral) method.

Link: <http://dip.sun.ac.za/~weideman/research/differ.html>

## 4. Doronix Math ToolBox

A compact alternative to MatLAB's plotting system. This application can handle matrices, various mathematical functions, and allows the user to write up various algorithms and functions.

Link : <http://doronix-math-toolbox.software.informer.com/>

## Other useful toolboxes

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### 1. CHMMBOX

for coupled hidden Markov modeling using maximum likelihood EM

Matlab toolbox for Coupled Hidden Markov Modelling using Max. likelihood EM. The CHMM topology has 2 chains and lag 1. Belief propagation is performed using node clustering. Prerequisites

Link: <http://www.robots.ox.ac.uk/~parg/software.html>

### 2. Captain

non-stationary time series analysis and forecasting

The Captain Toolbox is a set of MATLAB ® functions for non-stationary time series analysis and forecasting.

Link: <http://www.es.lancs.ac.uk/cres/captain/overview.html>

### 3. AR-Toolkit

computer vision tracking

The Augmented Reality Tool Kit (ARToolKit) captures images from video sources, optically tracks markers in the images, and composites them with computer-generated content using OpenGL. Dual-licensed, under the GPL, plus commercially by ARToolworks, Inc.

Link: <http://sourceforge.net/projects/artoolkit/>

### 4. Bayes Net

inference and learning for directed graphical models

The Bayes Net Toolbox (BNT) is an open-source Matlab package for directed graphical models. BNT supports many kinds of nodes (probability distributions), exact and approximate inference, parameter and structure learning, and static and dynamic models.

Link: <https://github.com/bayesnet/bnt>

## 5. BNT-SM

Bayes Net Toolbox for Student Modeling (BNT-SM) is an effort to facilitate the use of dynamic Bayes nets in the student modeling community. Dynamic Bayes Nets (DBNs) provide a powerful way to represent and reason about uncertainty in time series data, and are therefore well-suited to model a student's changing knowledge state during skill acquisition

Link: <http://www.cs.cmu.edu/~listen/BNT-SM/>

## 6. DACE

kriging approximations to computer models

Typical use of this software is to construct a kriging approximation model based on data from a computer experiment, and to use this approximation model as a surrogate for the computer model.

Link: <http://www.imm.dtu.dk/~hbni/dace/>

## 7. EasyKrig

It is a local estimator that can provide the interpolation and extrapolation of the originally sparsely sampled data that are assumed to be reasonably characterized by the Intrinsic Statistical Model (ISM)

Link: [http://globec.whoie.edu/software/kriging/easy\\_krig/easy\\_krig.html](http://globec.whoie.edu/software/kriging/easy_krig/easy_krig.html)

## 8. EEGLAB

EEGLAB is an interactive Matlab toolbox for processing continuous and event-related EEG, MEG and other electrophysiological data incorporating independent component analysis (ICA), time/frequency analysis, artifact rejection, event-related statistics, and several useful modes of visualization of the averaged and single-trial data.

Link: <http://scn.ucsd.edu/eeglab/>

## 9. FastICA

fixed-point algorithm for ICA and projection pursuit

The FastICA package is a free (GPL) MATLAB program that implements the fast fixed-point algorithm for independent component analysis and

projection pursuit. It features an easy-to-use graphical user interface, and a computationally powerful algorithm.

Link: <http://research.ics.aalto.fi/ica/fastica/>

#### 10. FDtools

fractional delay filter design

Link: <http://legacy.spa.aalto.fi/software/fdtools/>

#### 11. FSBOX

stepwise forward and backward selection of features using linear regression

Link: <http://www.robots.ox.ac.uk/~parg/software.html>

#### 12. GCE Data

managing, analyzing and displaying data and metadata stored using the GCE data structure specification

The GCE Data Toolbox is a comprehensive software framework for metadata-based analysis, quality control, transformation and management of ecological data sets.

Link: [http://gce-lter.marsci.uga.edu/public/im/tools/data\\_toolbox.htm](http://gce-lter.marsci.uga.edu/public/im/tools/data_toolbox.htm)

#### 13. glmlab

general linear models

glmlab is a set of m-files for using MATLAB for analysing generalised linear models.

Link: <http://freesourcecode.net/matlabprojects/58360/glmlab-is-a-set-of-m-files-for-using-matlab-for-analysing-generalised-linear-models.-#.VTVVmSGqqko>

#### 14. GTM

generative topographic mapping, a model for density modeling and data visualization

Link:

<http://cda.psych.uiuc.edu/martinez/edatoolbox/Docs/ContentsGTM.htm>

### 15. HMM

hidden Markov models

this toolbox supports inference and learning for HMMs with discrete outputs (dhmm's), Gaussian outputs (ghmm's), or mixtures of Gaussians output (mhmm's).

Link: <http://www.cs.ubc.ca/~murphyk/Software/HMM/hmm.html>

### 16. HMMBOX

for hidden Markov modeling using maximum likelihood EM

Link: <http://www.robots.ox.ac.uk/~parg/software.html>

### 17. HUTear

auditory modeling

Link: <http://legacy.spa.aalto.fi/software/HUTear/node2.html>

### 18. Kalman

Bayesian Kalman filter

Link: <http://www.robots.ox.ac.uk/~sjrob/Outgoing/software.html>

### 19. Kalman Filter

filtering, smoothing and parameter estimation (using EM) for linear dynamical systems

Link: <http://www.cs.ubc.ca/~murphyk/Software/Kalman/kalman.html>

### 20. Lyngby

functional neuroimaging

Link: [http://hendrix.imm.dtu.dk/software/lyngby/download\\_files.html](http://hendrix.imm.dtu.dk/software/lyngby/download_files.html)

### 21. Robot

robotics functions, e.g. kinematics, dynamics and trajectory generation

Link: <http://www.petercorke.com/RTB/button.php>

## 22. TSA

uni- and multivariate, stationary and non-stationary time series analysis

Link: <http://pub.ist.ac.at/~schloegl/matlab/tsa/download.html>

## 23. TSTOOL

nonlinear time series analysis

TSTOOL is a software package for nonlinear time series analysis. It is implemented mainly in MATLAB

Link: <http://www.physik3.gwdg.de/tstool/>

## 24. Weka

is a collection of machine learning algorithms for data mining tasks. The algorithms can either be applied directly to a dataset or called from your own Java code. Weka contains tools for data pre-processing, classification, regression, clustering, association rules, and visualization. It is also well-suited for developing new machine learning schemes.

Link: <http://www.cs.waikato.ac.nz/ml/weka/>

## 25. MaxAgr

A new software for aggregating opinions of expe

## 26. CI-LQD

A software tool for modeling and decision making with Low Quality Data.

Link : <http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=6622418>

## 27. DataEngine

This is a software tool for intelligent data analysis which unites statistical methods with neural networks and fuzzy technologies.

Link : <http://www.dataengine.de/de/>

## 28. Yang2013

A graphical tool aimed at controlling and monitoring temperature and relative humidity in the context of fine agriculture.

Link: <http://www.sciencedirect.com/science/article/pii/S0378778813000650> :

29. Zeng2009

Expert system which combines ANFIS with genetic algorithms for designing in situ toughened Si<sub>3</sub>N<sub>4</sub>.

Link: <http://www.sciencedirect.com/science/article/pii/S0261306908001763> :

30. Angulo2012

Matlab toolbox for measuring water quality episodes from the behavior of variables measured at water control networks.

Link : <http://www.sciencedirect.com/science/article/pii/S0957417411010645>

31. FCM-uUTI-DSS

Matlab toolbox for dealing with uncomplicated urinary tract infection treatment management based on fuzzy cognitive maps.

Link : <http://www.cmpbjournal.com/article/S0169-2607%2811%2900243-4/abstract>

32. FMCGDSS-DECIDER

A toolbox for linguistic multi-criteria group decision-making applied to fabric hand-based textile material evaluation.

Link : <http://link.springer.com/article/10.1007%2Fs10700-009-9068-z>

33. MCDM Analyst

A toolbox for handling spatial multicriteria decision analysis.

Link : <http://www.iseis.org/jei/abstract.asp?no=201200219>

34. FuzzyUPWELL

Matlab toolbox devoted to the fully automatic and unsupervised precise segmentation

(based on fuzzy clustering) of upwelling images.

Link : <http://www.sciencedirect.com/science/article/pii/S0098300411003608>

35. [Mandelias2013](#)

Toolbox for automatic image segmentation combining fuzzy cognitive maps and wavelet transform. It is applied to lumen border extraction and strut detection in intravascular optical coherence tomography.

Link : <http://scitation.aip.org/content/aapm/journal/medphys/40/6/10.1118/1.4803461>

36. [Mclust](#)

A toolbox aimed at performing fuzzy clustering with the information from metabolites.

Link : <http://link.springer.com/article/10.1007%2Fs11306-011-0368-2>

37. [Pinti2010](#)

Matlab toolbox for the multiple correspondence analysis of morphometric skull datasets.

Link : <http://www.cmpbjournal.com/article/S0169-2607%2809%2900280-6/abstract>

38. [PaleoSearch](#)

Toolbox which deals with paleo-journal articles by content word or ontology-supported browsing.

Link : <http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=5346682>

39. [Angulo2012](#)

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Link : <http://www.sciencedirect.com/science/article/pii/S0957417411010645>



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46. Pinti2010

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Link : <http://www.cmpbjournal.com/article/S0169-2607%2809%2900280-6/abstract>

47. PaleoSearch

Toolbox which deals with paleo-journal articles by content word or ontology-supported browse categories.

Link : <http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=5346682>

48. Seto2009

A system with a GUI query builder which generates XQuery statements that support for both strict and fuzzy qualifiers.

Link : [http://link.springer.com/chapter/10.1007%2F978-3-642-04394-9\\_41](http://link.springer.com/chapter/10.1007%2F978-3-642-04394-9_41)

49. SIRE2IN

A recommender system for research resources that is supported by fuzzy linguistic modeling.

Link : <http://www.sciencedirect.com/science/article/pii/S0957417408003126>

50. Karavezyris2002

Application of system dynamics and fuzzy logic to forecasting of municipal solid waste.

Link : <http://www.sciencedirect.com/science/article/pii/S0378475402000101>

51. [Ng2009](#)

System dynamics simulation and optimization with fuzzy logic.

Link : <http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=5373149>

52. [Kim1997](#)

Forecasting time series with genetic fuzzy predictor ensemble.

Link : <http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=649903>

53. [SuretyQualification](#)

Toolbox which allows interaction between the user and an optimized fuzzy expert system for estimating contractor default in the context of surety bonding.

Link : <http://ascelibrary.org/doi/10.1061/%28ASCE%29CO.1943-7862.0000639>

54. [Zein-Sabatto2013](#)

Statistical approach to online prognostics of turbine engine components.

Link : <http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=6567479>

55. [KKAnalysis](#)

Matlab toolbox able to perform the unsupervised classification of volcanic tremor data.

Link : <http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=6567479>

56. PoolEvidence and LinguisticBelief

Toolboxes which are aimed at evaluating terrorist acts.

<http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=5156446>

57. RCSUEX

Certainty Representation of the Exploratory Success. A toolbox in charge of making easier the evaluation of petroleum exploration prospects.

Link : <http://www.sciencedirect.com/science/article/pii/S0957417408004594>

58. RiskCriticalityAnalyzer and FuzzyReliabilityAnalyzer

Toolboxes which provide a comprehensive framework for the risk evaluation of the construction industry.

Link : <http://ascelibrary.org/doi/10.1061/%28ASCE%29CO.1943-7862.0000471>

59. CMMI-ASS

Toolbox to help self-assessment software companies to accomplish the appraisal process.

Link : <http://www.sciencedirect.com/science/article/pii/S0957417410010869>

60. MRES

A toolbox for selecting resources in software project management.

Link : [http://link.springer.com/chapter/10.1007%2F978-3-642-01347-8\\_32](http://link.springer.com/chapter/10.1007%2F978-3-642-01347-8_32)

61. SEffEst

A toolbox which combines fuzzy logic and neural networks for effort estimation in software projects.

Link : <http://www.tandfonline.com/doi/abs/10.1080/18756891.2012.718118>

### 62. CAVUS

A web-based system to aid in the evaluation of learning management systems.

Link : <http://www.sciencedirect.com/science/article/pii/S0965997809001744>

### 63. FIRS-trainer

A toolbox which focuses on courses related to fuzzy information retrieval systems.

Link : <http://link.springer.com/article/10.1007%2Fs10791-008-9087-3>

### 64. FuzzyRAMSET

Matlab toolbox applied to software engineering courses in order to give students a practical experience.

Link : <http://onlinelibrary.wiley.com/doi/10.1002/cae.20504/abstract>

### 65. MNTOOL

A a visual and friendly Matlab environment to help students in experimenting with multi-net neural systems.

Link : <http://onlinelibrary.wiley.com/doi/10.1002/cae.20459/abstract>

### 66. RTlab

Real-time laboratory environment combines dSPACE DS1103 DSP and Matlab/Simulink/RTW with the aim of helping students to model and control induction motor drives.

Link : <http://onlinelibrary.wiley.com/doi/10.1002/cae.20407/abstract>

### 67. VirtualLab

A toolbox aimed at teaching fuzzy control.

Link

[http://www.academicjournals.org/article/article1380880493\\_Bingol%20and%20Pacaci.pdf](http://www.academicjournals.org/article/article1380880493_Bingol%20and%20Pacaci.pdf)

### 68. MLJ

Machine Learning in Java

Link : <http://www.kddresearch.org/Groups/Machine-Learning/MLJ/>

### 69. BN/PBN MATLAB Toolbox

This toolbox is written in MATLAB and can be used to work with Boolean Networks and Probabilistic Boolean Networks. It includes functions for simulating the network dynamics, computing network statistics (numbers and sizes of attractors, basins, transient lengths, Derrida curves, percolation on 2-D lattices, influence matrices), computing state transition matrices and obtaining stationary distributions, inferring networks from data, generating random networks and functions, visualization and printing, intervention, and membership testing of Boolean functions. See the file Contents.m for a listing of included functions. In MATLAB, type help Contents

Link : <http://www.mybiosoftware.com/bnpbn-toolbox-toolbox-boolean-networks-probabilistic>

### 70. bSmart

It is an open source Matlab/C Toolbox designed for analyzing brain circuits.

Link : <http://bsmart.software.informer.com/>

### 71. SketchMatrix

Ultimate software tool to create professional looking sketch art from any photo.

Link : [http://download.cnet.com/SketchMatrix/3000-12511\\_4-10594860.html](http://download.cnet.com/SketchMatrix/3000-12511_4-10594860.html)

### 72. JellyFish Light

JellyFish is a neural net based backgammon program that plays at high level

Link : <http://jellyfish-light.software.informer.com/3.5/>

### 73. NeuralPower

NeuralPower is a general, integrated, easiest-to-use and powerful Artificial Neural Network ANN

Link : <http://neuralpower.software.informer.com/>

#### 74. SwingNN

SwingNN makes forecasting and prediction easy. Import data from any file.

Link : <http://www.swingnn.com/>

#### 75. NeuralBuild

NeuralLimits introduces NeuralBuild Version , a code generator.

Link : <http://www.neurallimits.com/products-mainmenu-28/neuralbuild-mainmenu-30>

Link : <https://sites.google.com/site/neurallimits/NeuralBuild-Downloads>

#### 76. NeuroSolutions

It is an easy-to-use neural network development tool for Microsoft Windows.

The NeuroSolutions product family is leading-edge neural network software for data mining to models using advanced preprocessing techniques, intelligent automated neural network topology computing.

Link : <http://neurosolutions.com/downloads/>

#### 77. Joone

Joone is a neural network Java framework with an easy-to-use graphical interface. Joone project create, train and test artificial neural networks. The aim is to create a powerful environment based on the newest Java technologies.

Link : <http://sourceforge.net/projects/joone/>

#### 78. AnimatLab

It combines biomechanical simulation and biologically realistic neural networks.

Link : <http://animatlab.com/>

#### 79. TradingSolutions

Neural Network Based Analysis, Trading and Investment Software. TradingSolutions is a tool for both traditional technical analysis and artificial intelligence technologies

Link : <http://tradingsolutions.win7dwnld.com/>

#### 80. NeuroTracer Demo

NeuroTracer it is a vectorizing program for the neural network technology.

Link : <http://neurotracer-demo.software.informer.com/1.7/>





## Description of Attachments

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Number of above toolboxes or soft wares have been downloaded. And are available on CD. Every file is in own folder according above partitioning.

## References

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After any item , there is its link.