

# Release Notes of MatTuGames

## About Version 1.9.2

**Release Date: 14-Feb-2021**

New in Version 1.9.2 is the implementation of a set of functions to get from an airport cost allocation problem some capital cost distributions based on well-established game solutions. Moreover, a set of functions is conceived to study Lorenz and Anti-Lorenz domination. Furthermore, some routines are added to compute derived Banzhaf indices. In addition, some tools have been introduced to handle an MC-nets representation. We have also rewritten some m-functions to cope with the depreciation of the MATLAB interface for CPLEX. Finally, some minor bugs were fixed.

## About Version 1.9

**Release Date: 17-Jun-2021**

New in Version 1.9 is the implementation of a set of functions to compute the public good index w.r.t. a network. Moreover, functions to compute the chi-, Gately-, or Equal Collective Gains value have been added. In addition, a set of routines to check whether a game is almost-convex almost-concave etc. were implemented. Due to some miscalculations, the function to compute a minimum cost spanning game has been completely overhauled, and some new routines to study this game class were enclosed. Finally, some minor bugs were fixed.

## About Version 1.8

**Release Date: 31-Jan-2020**

## **SUMMARY**

A major highlight of Version 1.8 is the implementation of a set of functions to compute the modified and proper modified pre-kernel of a game. In this respect, the axiomatization of these solutions and of the modiclus has been implemented. In addition, some functions have modified. Finally, some minor bugs were fixed.

## **About Version 1.7.5**

**Release Date: 22-Jan-2019**

## **SUMMARY**

A major highlight of Version 1.7.5 is the implementation of a set of functions to compute the modiclus as well as the simplified (pre-)nucleolus and simplified (pre-)kernel of a game. Furthermore, a set of functions to compute a minimum cost spanning has been added. Some minor bugs were fixed.

## **About Version 1.7**

**Release Date: 24-Apr-2018**

## **SUMMARY**

The functions to compute the (pre-)nucleolus/kernel and the associated function set of third party solvers like CPLEX, GUROBI and MOSEK have been modified. Some minor bug fixes.

## **About Version 1.6**

**Release Date: 21-Dec-2015**

**SUMMARY**

The set of graphical functions has been extended, for instance, the core-cover, and some kernel catchers can now be plotted. The anti-core functions have been revised, and are more robust. A simplex projection method from 4-d into 3-d has been added. Some minor bug fixes.

**About Version 1.5**

**Release Date: 06-Apr-2015**

**SUMMARY**

All functions that are using the linprog command from Matlab's Optimization Toolbox apply now a dual-simplex method. As a consequence, these functions are not anymore backward compatible. Some minor bug fixes.

**About Version 1.4**

**Release Date: 06-Mar-2015**

**SUMMARY**

Extended the graphical capabilities of the toolbox by adding some new function.

**About Version 1.3**

**Release Date: 03-Nov-2014**

### **SUMMARY**

Complete code revision of the function ShapleyValue. It is now in average ten times faster, but needs more memory. Added new graphic functions and some code revision for the old ones. They require now the Multi-Parametric Toolbox 3, and their behavior have changed. Finally, a set of new functions has been added and some bugs were fixed.

## **About Version 1.2**

**Release Date: 02-Oct-2013**

### **SUMMARY**

Some code optimization for the Shapley value functions. Performance increase is about 15 percent. A set of new functions were added to compute fairness or related values like Aumann-Dreze, Owen, Myerson, position, solidarity and coalition solidarity value. Moreover, some functions to replicate the Shapley value for related games are incorporated. In addition, two new subclass objects have been added. Some functions and methods have been modified as well as some bugs have been fixed. The documentation has been revised and updated.

## **About Version 1.1**

**Release Date: 04-Jun-2013**

### **SUMMARY**

Code revision of the pre-kernel functions. The evaluation is in average 30 times faster than under the previous version. A set of new functions were added to compute the pre-nucleolus, nucleolus and the kernel. To increase the set of available solvers various interfaces to third party solvers have been added. Moreover, to assist the user in relative complex and comprehensive game investigations the class object TuGame with several subclasses was designed. Finally, the code of many functions have been modified and some bugs have been fixed, see below for the details.

## **About Version 1.0.2**

**Release date: 03-Apr-2012**

### **SUMMARY**

Updated installation instruction

Revised documentation

A boundary value corrected in CddPreKernel.m