

Installation

- The code is written in the Julia Programming language. Please install the latest version of Julia from <https://julialang.org/>.
- The Gurobi commercial solver is used for the mixed integer programming problems. Please download and install Gurobi from <https://www.gurobi.com/>. Gurobi provides free licenses to academics.
- We recommend that you install and use the Julia IDE Juno from <https://juno lab.org/>
- **After** installing Gurobi, you need to install the Gurobi Julia Package (interface) in addition to a number of packages. To do so type the following commands in a Julia command line

```
using Pkg
Pkg.add("JuMP")
Pkg.add("Gurobi")
Pkg.add("Distributions")
Pkg.add("DataFrames")
Pkg.add("CSVFiles")
Pkg.add("DelimitedFiles")
Pkg.add("CSV")
Pkg.add("LinearAlgebra")
Pkg.add("Random")
Pkg.add("ForwardDiff")
Pkg.add("LightGraphs")
Pkg.add("Plots")
Pkg.add("TikzGraphs")
```

- Finally you need to install a non linear solver. There are two options KNITRO and IPOPT
 - KNITRO is a commercial solver for non linear optimization problems. Download and install KNITRO from <https://www.artelys.com/solvers/knitro/> . You can request a trial license for a year using an academic email. AFTER properly installing KNITRO, you need to also install the KNITRO Julia Package (interface). To do so run: using Pkg; Pkg.add("KNITRO"). For more details refer to <https://jump.dev/KNITRO.jl/latest/index.html>
 - The second option is to use Ipopt. To install Ipopt simply run using Pkg; Pkg.add("Ipopt"). Ipopt is open-source.
 - Performance wise, KNITRO is faster and is more likely to arrive at the optimal solution. KNITRO implements conjugate gradient methods.