

GPOPS Setup and Example Problem

University of California, Berkeley
Energy, Controls, and Applications Lab (eCAL)
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Overview

- Setup
- Overview of Files to Run Example
- Example Results

Setup

- Read gpopsManual.pdf for GPOPS overview and license details
- Read README.INSTALL.txt for GPOPS setup details
- Run gpopsSetup.m to setup GPOPS and SNOPT* directories
 - File Directory: ..\gpops

*The version of GPOPS that is used includes SNOPT

Overview of Files to Run Example

3 files required to run minimumClimbMain example

- Main Problem Script: minimumClimbMain.m
- Cost Function Script: minimumClimbCost.m
- DAE Script: minimumClimbDae.m
 - File Directory: ..\gpops\examples\minimumClimb

Steps to Run Example

Steps to run minimumClimbMain example

- Run minimumClimbMain.m
- Select output.solution variables in MATLAB workspace to view results

Beginning of MATLAB Command Window

[illegible]

-

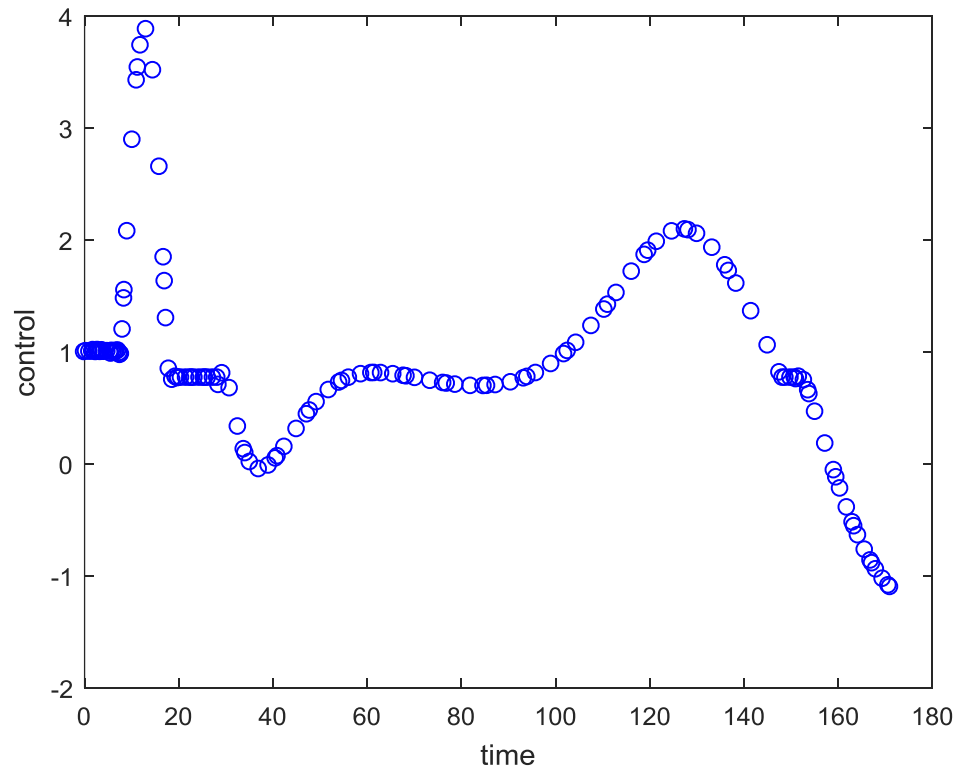
Example Results

End of MATLAB Command Window

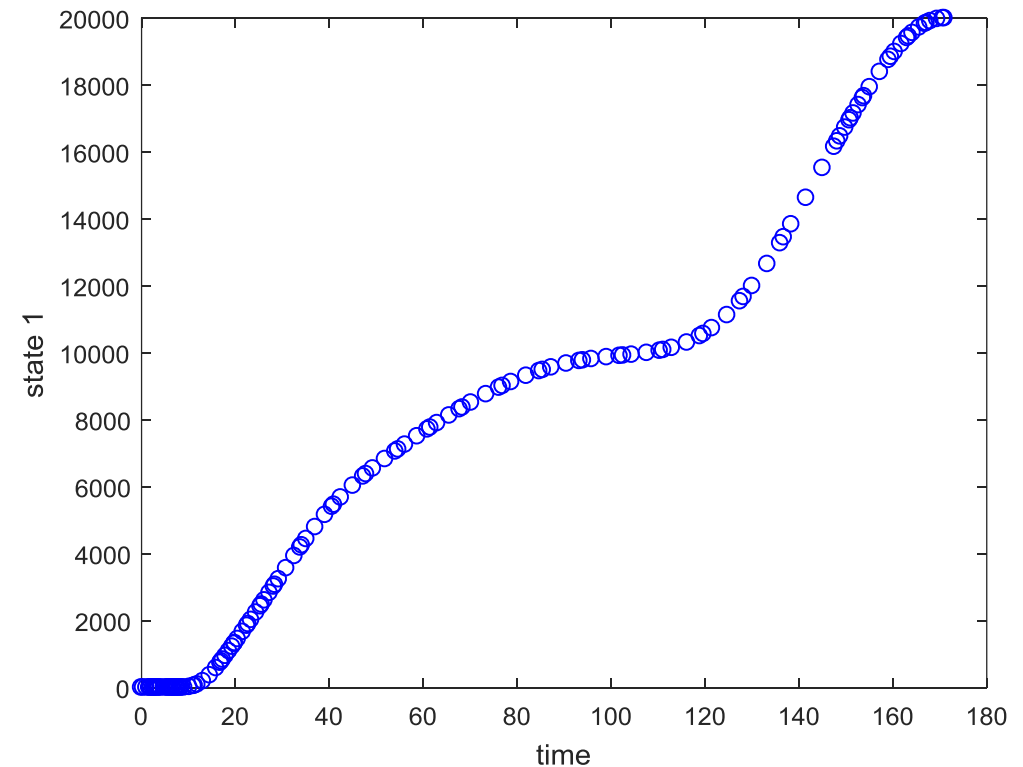
```
|  
|-----|  
| NUMBER OF SOLUTION MESHES: 7 |  
|-----|  
  
|  
|-----|  
| NUMBER OF MESH REFINEMENTS: 6 |  
|-----|  
  
|  
|-----|  
| SOLUTION AT DISCRETIZATION POINTS STORED IN "output.solution" OF OUTPUT STRUCTURE |  
|-----|  
|  
| solution.time      --> Array of Structures with Time in Each Phase |  
| solution.state     --> Array of Structures with State in Each Phase |  
| solution.control   --> Array of Structures with Control in Each Phase |  
| solution.costate   --> Array of Structures with Costate in Each Phase |  
| solution.parameter --> Array of Structures with Parameters in Each Phase |  
|-----|  
  
|  
|-----|  
| SOLUTION FOR PLOTTING STORED in "output.solutionPlot" |  
|-----|  
  
|  
|-----|  
| solutionPlot.time  --> Array of Structures with Time in Each Phase |  
| solutionPlot.state --> Array of Structures with State in Each Phase |  
| solutionPlot.control --> Array of Structures with Control in Each Phase |  
| solutionPlot.costate --> Array of Structures with Costate in Each Phase |  
| solutionPlot.parameter --> Array of Structures with Parameters in Each Phase |  
|-----|
```

Example Results

Time vs. Control*



Time vs. State 1*



*Results plotted at solution points from output.solution variables in workspace