T-MATS
Toolbox for the Modeling and Analysis of Thermodynamic Systems

Description
The Toolbox for the Modeling and Analysis of Thermodynamic Systems (T-MATS) is a MATLAB/Simulink (The MathWorks Inc.) plug-in for creating and simulating thermodynamic systems and controls. The package contains generic parameterized components that can be combined with a variable input iterative solver and optimization algorithm to create complex system models, such as gas turbines.

Technical Approach
• Customizable turbo-machinery component models based on map data and physics-based algorithms.
• Iterative solver blocks that utilize an automated Jacobian calculation within the Newton Raphson numerical solving method.
• Baseline controller models that can be used in the simulation of control hardware and software.

Features of T-MATS
• Simple dynamic system framework architecture.
• Drag and drop parameterized turbo-machinery and control system modeling blocks.
• Automated solver blocks color coded for easy model set up.
• Capable of running faster than real time.
• Tools that make model creation easy and fast.
• Open source license, encourages unrestricted collaboration.

More Information
Download the latest open source software from: https://github.com/nasa/T-MATS/releases/