Modeling and Simulation Technologies (MaSTech)
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Welcome to the CADAC Simulations

All former FORTRAN CADAC simulations are now in C++, compatible with Microsoft Visual Studio C++ compilers.

The simulations were built with VS 2013.

If you have VS 2013 on your computer, just click on the 'Microsoft Visual Solution' icon and the simulation will open in the editor; then compile in the 'Release' mode and run with the provided 'input.asc' file.

If you have an earlier version of VS, you have to build a new Project from the header and source code files.

If you have a later version of VS, just click on the 'Microsoft Visual Solution' icon. Your VS will update the code automatically and open in the editor; then compile in the 'Release' mode and run with the provided 'input.asc' file.

These are the folders with their respective simulations:

ADS6 6DoF Air defense simulation against rockets and aircraft, Monte Carlo capable
AGM6 6DoF Air-to-ground missile, IR seeker
AIM5 5DoF Short range air-to-air missile
CRUISE5 5DoF Cruise missile with terminal sensor and satellite targeting
FALCON6 6DoF Falcon (F16) aircraft with flight control system
GHAM3 3DoF NASA hypersonic vehicle with tricyclic propulsion
GHAME6 6DoF NASA hypersonic vehicle with flight control, GPS/INS, SAR, Monte Carlo
MAGSIX 6DoF Magnus rotor dynamics
ROCKET6G 6DoF Three-stage solid rocket booster, GPS/INS, orbital insertion guidance, weather deck, Monte Carlo
SRAAM6 6DoF Air-to-air missile against aircraft targets, multiple engagements, Monte Carlo

Further details are provided in the following publications

Zipfel, Peter H, "Modeling and Simulation of Aerospace Vehicle Dynamics", AIAA Education Series, 3rd Ed. 2014, American Institute of Aeronautics and Astronautics.
Zipfel, Peter H, "Building Aerospace Simulations in C++", AIAA Self-Study Series, 3rd Ed. 2014.
Zipfel, Peter H, "Fundamentals of 6 DoF Aerospace Simulation and Analysis in C++", AIAA Self-Study Series, 2nd Ed. 2014.
Zipfel, Peter H, "Advanced 6 DoF Aerospace Simulation and Analysis in C++", AIAA Self-Study Series, 2nd Ed 2014.
Zipfel, Peter H, "INS/GPS Star_Tracker in 6 DoF, Simulating N&G&C of a Three-Stage Solid Rocket Booster in CADAC++", Modeling and Simulation Technologies, Amazon 2015.
Zipfel, Peter H, "Introduction to Tensor Flight Dynamics, A Paradigm Shift", Modeling and Simulation Technologies, Amazon 2019.