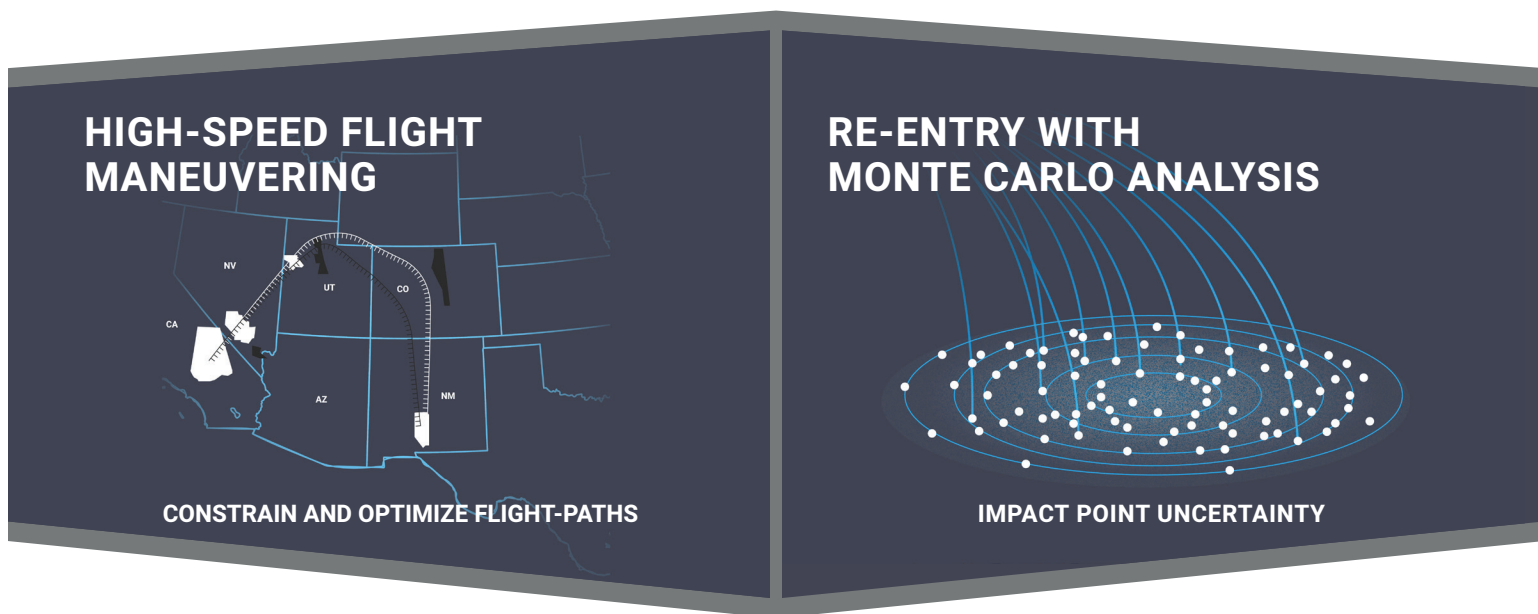




FULLY FEATURED TRAJECTORY OPTIMIZATION SUITE



QuickShot™ is a suite of commercially available trajectory optimization software which includes flexible tools for solving your most challenging problems for flight systems ranging from launch vehicles, to hypersonic cruise missiles, to lunar landers, and is ideal for supporting conceptual and preliminary design activities. QuickShot is the product of almost a decade of development and is used by customers in both the government and private sectors. It utilizes the latest in multi-threaded computing techniques and stochastic optimization routines, enabling less time setting up problems and more time solving them. Our latest release offers the option of add-ons supporting 4DoF, branching, and visualizations which help bring your trajectory analysis to life. Below are two illustrated examples of potential QuickShot solutions.



KEY BENEFITS OF QUICKSHOT VS ALTERNATIVES



- Reduced training & set up time for engineers
- Cutting-edge stochastic optimization to find global min/max
- Cross-platform, Java, multi-threaded for max leverage of resources
- Robust physics-based numerical propagator prevents random crashes
- Customers in both commercial and government sectors
- Software actively used by internal engineering teams

Interested In QuickShot?

www.spaceworks.aero/quickshot software@spaceworks.aero 404.991.2217



QUICKSHOT CORE

Computational Terminal-Based QuickShot Application

- Text file inputs/outputs (ex. vehicle aero)
- No initial guesses required -> specified by bounds
- Optimization approach is robust, repeatable, and scalable
 - Offers reduced user setup and oversight
 - 50,000 - 5,000,000 total trajectories
- Designed to address historical problems in legacy codes
- Permits hands-off operation with minimal modifications
- Enables rapid answers to "what-if" questions
- QuickShot analysis runs do not "fail"
 - Always produce solution to be judged as desirable or not
- Problems without feasible solutions provide clear feedback
 - Detailed statistics of runtime results
- Runtime Viewer helps visualize in real-time

ENHANCE YOUR CAPABILITIES WITH THE FOLLOWING ADD-ONS

VISUALIZATION ADD-ON



INSIGHT

Hub for Viewing Data and Managing Files

- Runtime Viewer & post-processing in one workspace
- Hub for viewing data and managing files:
 - Plot any combination of variables on the X- and Y-axes
 - Runtime Viewers (Optimizer View & Trajectory View)
 - Integrated post processing for comparing runs
 - User configurable 2D maps for plotting range
 - Compatible with SIMDIS SDK for visualizations
 - **Makes parametric analysis easy!**
- FlightSight enables 3-D visualizations and animations
- Brings trajectory analysis to life
- Can be viewed in Google Earth or other KML/KMZ utilities

CORE ADD-ONS



4 DEGREES OF FREEDOM

Enhanced Modeling for Pitch Axis Analysis

- Assess static and dynamic pitch stability across flight regimes
- Characterize pitch axis controller and actuator requirements



BRANCHING

Multi-vehicle / Trajectory Analysis Capability

- Track multiple vehicles simultaneously in a single simulation
- Optimize design problems with multiple vehicles such as reusable multi-stage rockets

QuickShot is compatible with all major operating systems. Active license includes all software updates.



HOW DO WE COMPARE?



QuickShot offers several key advantages over the competition. Commercially available, offering a responsive customer service and helpline, and featuring a number of key features and benefits, QuickShot can be a crucial tool helping to solve your most complex trajectory optimization problems. See how we measure up.

	QuickShot™	POST2	OTIS	TAOS
3-DoF & 4-DoF Modeling	✓	✓	✓	✓
Windows, Mac OS, and Linux Support	✓	✓	✓	✓
Multi-vehicle branching capability	✓	✓	✓	✓
MDAO framework support	✓	✓	✓	✓
Gradient-based optimization methods	✓	✓	✓	✓
Regular updates & compatibility checks	✓	✓		
Stochastic optimization methods	✓			
Responsive customer service and helpline	✓			
Post-processing support with GUIs	✓			
Multi-threaded for optimal use of CPU / threads	✓			
Intuitive problem setup & syntax	✓			
Intuitive diagnostics and user feedback	✓			
Available for commercial use	✓			

Schedule a Demo Today

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