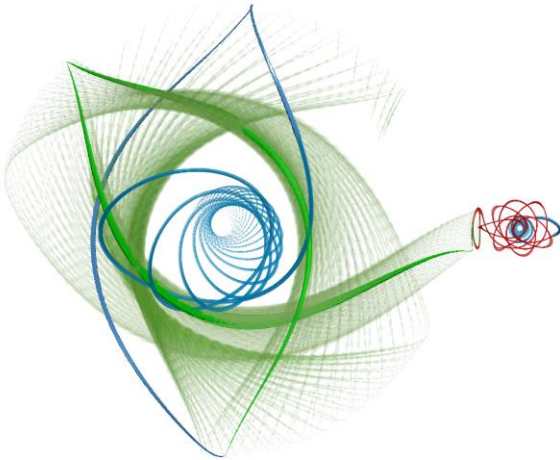




DYLAN: DYNAMICALLY LEVERAGED AUTOMATED (N) MULTIBODY TRAJECTORY OPTIMIZATION

OVERVIEW

- A C++ object oriented software for macOS, Linux, and Windows for solution of spacecraft trajectory problems in multibody domains (e.g. Earth-Moon, Jovian system)



- **DyLAN leverages dynamical systems theory** to find optimal spacecraft trajectory solutions.
- DyLAN is an **automated trajectory optimization tool**: the user only has to supply the high-level mission details and DyLAN will search the design space unassisted for an optimal solution.
- DyLAN takes into account multibody dynamics when searching for trajectory solutions.

PYTHON INTERFACE

- **pydylan** (the Python interface to DyLAN) enables quicker and easier access by users to setup problems and analyze results

DYNAMICAL MODELS

- Two-body Model
- Circular Restricted Three-Body Model
- n-Body modeling with NAIF SPICE

DYNAMICAL STRUCTURES

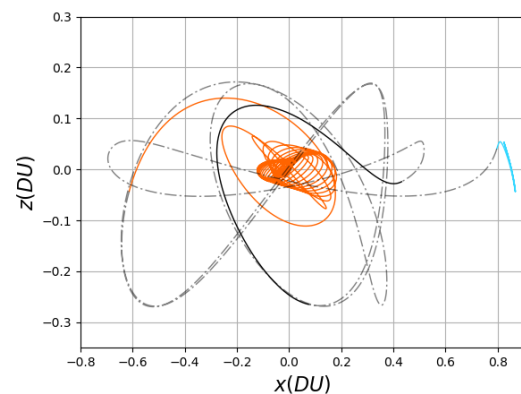
- Differential correction tools for generating: Lyapunov, Halo, near rectilinear Halo orbits (NRHO), resonant orbits and their associated manifolds.

GLOBAL OPTIMIZATION

- Is a **global optimization tool**: it can solve both local and global optimization problems by combining nonlinear program (NLP) formulations with the **Monotonic Basin Hopping (MBH)** algorithm to efficiently search the domain space.

VARIABLE BOUNDARY CONDITIONS

- Variable boundary conditions allow for easy problem formulation and ability for the global optimizer to fully search the parameter space.



ADDITIONAL FEATURES

- **Impulsive** and **low-thrust** engine modeling
- **Q-Law** solution for many revolution spirals



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PRICING

pydylan (the Python interface to DyLAN) pricing:

- Single Seat License: \$20,000.00
- Additional Simultaneous-Use Seat License: \$10,000.00 / seat
- Add 4% for payment by credit card

OTHER INFORMATION

- **pydylan** is cross platform (macOS, Linux, Windows); current build v2.4.2
- SNOPT required for functionality (user supplied); SNOPT v7.6 and v7.7 supported (v7.7 has only been tested on macOS)
- **pydylan** API, limited tested problems and (minimal) User Guide provided
- Limited technical support at this time