V1.0.0 (6/29/23)

Highlights

- First official release
- Readme/user guide added
- Wrapper enables quick loading of data from user-defined files

New Features

- Introduction of user-defined files
    - .json file defines a train consist
        - params at train level
        - params at unit level, to be aggregated across train level
    - .csv file defines a route, stop-by-stop
        - stop name
        - between each stop: track speed, distance
- Wrapper with options to load user-defined file(s)
    - (1) Initialize Train for further calculations, from train .json file
    - (2) Load train and route data from .json and .csv files, to calculate a reasonable timetable for the route

Enhancements

- Updated demo to match format of Readme
- Brake performance params can now be given (optionally) when creating a train (creating directly or loading file through wrapper)
    - No longer hardcoded constants
- Docstrings now show unit conversions for calculation functions

Bug fixes

V0.3.0 (6/24/23)

Highlights

- Acceleration/braking calculation fixes
- Acceleration/braking plots

New Features

- Plot: speed vs. time for acceleration or braking
    - Visualization for accel or brake curves

    - Sanity check for back-end calculations

Enhancements

Bug Fixes

- Error handling in stop-to-stop performance calculations
    - Error case 1: v_max_mph is unrealistic; speed is not reachable
    - Error case 2: d_tot_mi is unrealistic; distance is much too short vs. Acceleration/deceleration time needed
- Fixed erroneous acceleration calculations
    - In accel_time and accel_vel calcs, v_1 term should be v_1^2 (v_1 ** 2)
- Fixed incorrect braking performance constants

V0.2.0 (2023-06-18)

Highlights

- Implemented braking functions
- Implemented stop-to-stop functions

New Features

- Acceleration performance calculations
    - Calculate time required to brake to a stop from a given velocity
    - Calculate distance required to brake to a stop from v_mph
    - Default braking performance constants (for now)
- Stop-to-stop performance calculations
    - Calculate total arrival-to-arrival travel time from one stop to the next
    - Ties together acceleration, braking, and in-between travel
    - constrained by either max practical speed, or stop-to-stop distance

Enhancements

- Renamed acceleration functions as to not confuse with braking functions
- Includes doc containing derivation of each equation
    - In code, implementations are now matched with derived equations

Bug Fixes

- Assert statements to ensure positive/non-negative values as appropriate

V0.1.0 (2023-06-14)

Highlights

- First release
- Acceleration performance calculations

New Features

- Create a train object from basic parameters:
    - m_lb = mass of train (lb)
    - P = traction power (hp)
    - F_lbf = max tractive effort (lbf)
    - D = simplified coefficient of drag
    - v_1 = the highest v where full F can be applied
    - t_1 = the time to accelerate to v_1
- Calculate time (or distance) required to reach a given velocity
- Calculate velocity or distance traveled given duration of sustained acceleration
- Constants defined to easily convert between US and metric units
- Helper functions to print each quantity in both units

Enhancements

Bug Fixes