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ME 449 - Assignment 2

IKinBodyIterates was copied from IKinBody in the Modern Robotics library. It was modified to store historical information about the configuration of the robot, including error. These historical variables were created as arrays. With each iteration of the function, new variable calculations are made and appended to the historical arrays. The arrays are returned with the final configuration and status.

Calling the function: (Blist, M, T, thetalist0, eomg, ev)

Function return: [thetalist, success_bool, joint_history, se3_history, error_twist_history, ang_err_mag_history, lin_err_mag_history]

The initial guess thetalist0=np.array([0, np.pi/2, -3*np.pi/2, 2*np.pi, -np.pi, -3*np.pi/2]) was found moving the sliders around in UR5 scene 1, then rounded to the nearest fraction of pi. The rotation part of the se3 matrix represents the direction of the axis relative to the space frame (might have that backwards), the final column of the se3 matrix is the translation distance of the frame origins, per axis.