Week 6 - HMI Research Group

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Summary

The previous plan for generating new motions has been ruled out—the method of data collection and analysis was very brute-force-based, inaccurate, and did not take sequential data into account. As such, NAO fell down almost 100% of the time when trying to generate new gestures aside from the `BodyTalk` category. Time series analysis is in progress.

Points

- `README.md` has been created on Github repository for documentation purposes.
- Reparsed NAO's sensor data to collect sensor data chronologically as he moves while performing `BodyTalk` gestures.
- Wrote a function that calculates and plots the time series data for each of the `BodyTalk` gestures.
- Noticed some general trends between certain groups of joints related to the `BodyTalk` category, such as joint symmetry during interpolation, etc.
- Read through the USC paper regarding low-dimensional manifolds.

Plans

- Come up with a preliminary method to work with the time series data and generate better gestures from it.
- Link data from gestures in a way that doesn't rely on brute-forcing them by skewed frequency (be smart about analysis).
- Set constraints on generated gestures so that transitions between successive gestures are smooth, not abrupt as they currently are.
- Refactor code for ease of understanding.

Addendum

The repository can be found `here` with its updated `README.md`. Time series plots for gestures from the `BodyTalk` category can be found `here`.