# TRANSLATION DRIFT BENCHMARK

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| Reference No / Version | RAL-SI-2020-B19-0838_3-V1.0<br>For the latest versions of the benchmark, please refer to http://newdexterity.org/benchmarking/ |
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| Adopted Protocol | Any protocol that involves periodic object translation (RAL-SI-2020-P19-0838_1-V1.0, RAL-SI-2020-P19-0838_3-V1.0, RAL-SI-2020-P19-0838_4-V1.0). |
| Scoring | Assessment is based on the average drift vector $\bar{\mathbf{d}}$ obtained through the following steps. For each recorded periodic manipulation motion:<br>1) Isolate motion end points.<br>2) Compute offset vectors between subsequent endpoints.<br>3) Compute the mean offset (drift) vector $\bar{\mathbf{d}}$ of the above offset vectors.<br>4) Compute the length of the mean drift vector $\left\|\bar{\mathbf{d}}\right\|^2$.<br>The resulting length corresponds to an average drift of a specific manipulation motion. If different objects are used, the steps are repeated for each instance. |
| Details of Setup | To assist with data processing and drift vector computation, code samples are provided. |
| Results to Submit | For each sensorized object and manipulation motion:<br>• Sensorized object type, size, and surface.<br>• Sensorized object mass and center of mass (internal weight configuration).<br>• Assessed hand model, aperture and control details.<br>• Computed drift vector lengths $\left\|\bar{\mathbf{d}}\right\|^2$.<br>• Plots of recorded point clouds with highlighted end points.<br>• Comments on obtained results with respect to the hand model and control. |