**Appendix A**

**Letter representation**

* **x** = spring constant
* **y** = joint number
* **z** = test number

**File name and Meaning**

* open simulation

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| --- | --- |
| *openangle-****x****-****y*** | Motor, spring and overall angle of joint. |
| *openjointrange* | Range of joint movement. Blue = joint 1, Green = joint 6, Maroon = joint 12, Red lines = theoretical limits. |
| *openspringrange* | Range of spring movement. Blue = joint 1, Green = joint 6, Maroon = joint 12. |
| *opentorque-****x****-****y*** | Spring torque. |
| *opentorquerange* | Range of spring torque. Blue = joint 1, Green = joint 6, Maroon = joint 12. |
| *opentraj****x*** | Trajectory of Wormbot |
| *opentrajspeed* | Speed of Wormbot |
| *ecordedVsCalculatedTorque-****x****-****y*** | Comparison of simulated and calculated torque |

* tapered simulation

|  |  |
| --- | --- |
| *taperedamplitudeaverage* | Average amplitude achieved, with maximum and minimum in whisker plots. |
| *taperedamplitudeminimum* | Minimum amplitude achieved. |
| *taperedspringangle-****x****-****y*** | Spring angle readings for 3 tests. |
| *taperedspringtorque-****x****-****y*** | Spring torque readings for 3 tests. |
| *taperedtraj-****x*** | *Trajectory of Wormbot* |

* staggered simulation

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| --- | --- |
| *Staggeredamplitudestage* | Average and range of width reached |
| *Staggereddistancelines* | Average width reached, displayed on layout of map. |
| *Staggeredtraj-****x*** | Trajectory of Wormbot |

* large maze simulation

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| --- | --- |
| LargeMazeSpeed | Average Speed of Wormbot. Blue = test 1, Green = test 2, Maroon = test 3. |
| LargeMazeTraj-***x*** | Trajectory of Wormbot through Maze |

* small maze simulation

|  |  |
| --- | --- |
| SmallMazeSpeed | Average Speed of Wormbot. Blue = test 1, Green = test 2, Maroon = test 3. |
| SmallMazeTraj-***x*** | Trajectory of Wormbot through Maze |