SMAUG Toolbox Version 1.0

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SMAUG Toolbox: Starting Guide

Welcome to the Single Molecule Analysis Unified Graphical (SMAUG) Toolbox! This software package contains the code for Segment Clustering, a hypothesis generation tool for single molecule distance/conductance breaking traces recently described in Bamberger et al. 2020. However, as the name suggests, the SMAUG toolbox contains additional graphical analysis tools for breaking trace data, all incorporated into a single unified framework. These tools range from the simple and common (e.g. 1D and 2D histograms histograms) to more advanced statistical techniques developed in the literature (e.g. conductance correlation histograms). Capabilities for other clustering approaches not described in Bamberger et al. 2020 are also included.

Here is a high-level guide for how to explore and use this software package:

1. Before doing anything else, run the “RUN\_ME” function in the top-level SMAUG directory. This function adds all SMAUG sub-folders to your MatLab path so that any function can be run from anywhere inside the package.
2. All SMAUG analysis functions require raw data to be stored in the same common “Trace Structure” format. See [xxx] for instructions on how to put your data into this format. Once you’ve done this, you’ll be able to easily employ all SMAUG tools!
3. For a quick tutorial on how to apply Segment Clustering to a dataset, use the live script [xxx], which shows an example of clustering an example dataset included in this package.
4. For a quick tutorial on how to use the other common analysis tools in the SMAUG toolbox, use the live script [xxx], which shows examples using the example dataset included in this package.
5. For a more complete list of the different tools available in this package and their capabilities, see [xxx].
6. For detailed information on any particular function in this package, see the comments at the very start of the file, which will include a brief description of what the function does as well as each of its inputs and outputs.