Data Management Plan

Basic Information
Principal Investigator: Shah, Sameer B.
Other Participants in Research Activities: Postdoctoral Fellows, Graduate Students, Undergraduate Students, and High School Students who are or have been members of the Neuromuscular Bioengineering Laboratory; a complete list may be found at: *http://terpconnect.umd.edu/~sameer/*
Aim of Data Management Plan: To share high quality data with the scientific community.

Categories of Data and Standards for Format and Metadata
Raw Data Used towards Publication
   A. We will generate **movies** of cellular response to a variety of experimental conditions (detailed in B).
   B. Each movie represents an experiment incorporating various combinations of i) different cargoes (mitochondria, cytoskeletal elements); ii) various mechanical loading conditions (various strains, strain rates, etc.); iii) chemical or genetic perturbation of cytoskeletal or crosslinking elements. Raw data that is of sufficient quality, based on image quality and a consistent cellular environment throughout data capture will be processed to generate a wide spectrum of **spatial and temporal parameters for each cargo**.
   C. By necessity, we are already required to compile and organize this data in a logical manner for our own analysis. **Raw data is stored either as Excel spreadsheet files or as MATLAB data files.** In each case, **column headers** (for Excel) or **README files** (for MATLAB) provide a mechanism for understanding the data. A **digital log of experimental details** also provide a link to corresponding image files as well as a brief description of experimental conditions, providing context for data collection.

Analyzed Data Used towards Publication
   Charts, figures, and tables resulting from our analysis of raw data will be generated for presentation and publication.

Data Not Used towards Publication
   Our quantitative data is likely to be valuable for the mathematical modeling community. Consequently, **raw data that is not used towards publication will still be screened for quality**, though it will be tagged as unpublished.

Access to Data
   We will be happy to share our movies and raw and analyzed data that has been used towards publication, upon request. We would expect that upon completing their independent data analysis, researchers would cite our published work and/or provide co-authorship as necessary.
   The usage of data not used towards publication is still a gray area. While we are working to develop a public database in which raw data may be deposited, we do not yet have infrastructure or funding to provide such a service. Consequently, requests for data will be treated on a case-by-case basis. The most likely outcome is that we will provide unpublished data upon request, in exchange for authorship and/or establishment of a formal collaboration.

Archiving and Preservation

Generated data will be substantial, and archived on dedicated external hard drives and/or servers within our lab and in the School of Engineering, respectively.

Plans for Transition or Termination of Data Collection

In the event that data collection will be terminated or transitioned, we will continue to maintain archived data for a minimum of 5 years after termination. During this period, long-term data storage will be examined, including repositories such as Dryad and DataONE.