

Data Management Plan

The proposed research will result in substantial data collection and software development. We will strive to release the products of these efforts to the public with unrestrictive licenses following open practices, so long as they do not compromise intellectual property interests, interfere with publication, betray confidentiality, or precede data curation. All data collected from human subjects in the proposed research will be handled according to the NSF policy on the dissemination and sharing of research results (AAG Chapter XI.D.4).

Research Data Description

The data to be generated under this project include:

- Algorithms, including but not limited to safe DNN-based and delay compensating controllers for telerobotic and telerehabilitation systems, and methods to update the DNNs.
- De-identified files of experimental data, including but not limited to encoder sensor data, torque/force sensor data, and control input information.
- Some of the experimental data will be used to generate DNN datasets that can be used to pre-train the DNN.
- Conversions of such data into figures.
- IRB consent forms for all human participant studies.
- Images, photographs, and videos of the experimental testbed with and without participants present.

The experimental data will be arriving as a continuous stream and stored in its raw form from the sensors or software data streams from the robotic systems. Periodically, the existing data store will be extracted, analyzed and archived, so that our overall data set will be incremental in structure. The data will be stored on remote, encrypted servers from Box <https://www.box.com/home>, which will be available to all project personnel. Final DNN datasets will be made publicly available, so long as such a dissemination does not compromise intellectual property interests, interfere with publication, invade subject privacy, betray confidentiality, or precede data curation.

Standards to be used for data and metadata format and content

Data that are shared will include standards and notations needed to interpret the data, following commonly accepted practices in the field. The software that is originally intended to be used in this project are readily available packages such as MATLAB, Simulink, C++, etc. Data will, in principle, be available for access and sharing as soon as is reasonably possible, normally not longer than one year after publication of the data.

Dissemination plan for Final Research Data and Research Resources

If requested, final research data will be made available for sharing to qualified parties by the PI, so long as such a request does not compromise intellectual property interests, interfere with publication, invade subject privacy, betray confidentiality, or precede data curation. An important research resource developed during the proposed project will be the DNN datasets that can be used to pre-train a DNN. For long-term storage, all data will be stored on centralized Auburn University-maintained computing systems in directories with access limited to project personnel. By default, all project personnel shall have read/write/edit access to the data. Internal data storage backup systems will be provided by Auburn University.

Policies and provisions for re-use, re-distribution

Data gathered for this project may be reused in other, related, research projects conducted by the PI or graduate students. It is possible that other researchers in computing would be interested in our dataset. Requests for the data would be handled as per described in the previous section.

Plans for archiving and preservation of access

All data will be preserved for at least three years beyond the award period. Long-term data storage will be handled by Auburn University computing services. All logs will be anonymized before storage. We will store a copy of the software used to record and process the data with the data itself to aid in future access. Research reports and papers on the project will be available through both the authors' websites and the corresponding digital archives (such as ACM, ASME, or IEEE).