**RESEARCH AND TEACHING TOOLS FOR MATLAB: A COMMUNITY DISCUSSION**

ARO 2016

The purpose of the session on Research and Teaching Tools for MATLAB was to try and answer the question: What are the community needs for the efficient sharing of MATLAB tools and resources for research and teaching? This topic is motivated by a number of reasons:

1. less duplication of effort across labs & development of teaching resources;
2. rigor and reproducibility of work, especially after graduation of grad students;
3. improve learning experience for students;
4. maybe having a more focused location for teaching and research resources may be more useful than just on Google?

While a conclusion was not reached during this meeting because of time constraints, we had some fruitful discussions and a number of issues were raised that should be the focus of future sessions. Most of the discussion revolved around the sharing of research tools. There was brief mention of a web-based textbook for teaching of MATLAB and/or for hearing sciences with MATLAB code examples. Perhaps the ARO website may be a good starting point for hosting this textbook, as well as a place to share research tools?

The following summary is divided into two sections: (1) possible best practices, and (2) open issues.

**1. Possible best practices for sharing**

* Post code online freely, rather than only providing when asked. Facilitates access, especially by students.
* Tagging - using meaningful keywords for code posted on the internet so that it is easier to search with internet search engines.
* Being motivated to share code before the start of the project. This can lead to better coding and documentation.
* Sharing of code should include simple usage examples, data sets and perhaps be able to generate figures within publications by the authors.

**2. Open issues**

* Posting on Auditory list may be initially good for announcing availability but may not be easy to find beyond initial announcement. Using tags and meaningful keywords may facilitate searchability of code.
* When searching online for tools, sometimes it is difficult to know what to search for. MATLAB answers forum may be a good start.
* How do we know if posted code works? Or does what it claims? Usage examples would help.
* Liability - who is liable? Licensing issues was briefly discussed.
* Sharing of datasets and speech corpuses.

The slides from presentations by Alan Kan, Michael Heinz, Ray Goldsworthy, Denis Drennan, Piotr Madjak, Laurel Carney and Lisa Kempler are available on request. These presentations highlight the purpose and reasons for these discussions; how MATLAB is being used for research and teaching within the ARO community; what tools are currently being shared; what tools are available within MATLAB to facilitate sharing; as well as what other communities are doing to share teaching resources.