

Preparing Multimedia Materials

Introduction

Authors for some journals are now submitting multimedia objects with their papers. A multimedia object is something that can play music, a video clip, run a program or view source code or in some way electronically enhance the information contained in the article itself beyond the normal graphics.

Multimedia File Types

There are two major categories of multimedia objects. The first is a playable file of some sort, such as a video clip or a sound file. The second is a data set, where the author has provided raw data, possibly along with some sort of program to help viewers of the article manipulate and analyze the data. This category may include program source code and directions for its use.

Playable multimedia objects can usually be recognized by their file extensions. These might include:

Audio	<ul style="list-style-type: none">.aiff (older but still common Audio Interchange File Format).au (Unix audio).midi.mov (Quicktime audio).mp3.ra (Real Audio).wav (Windows audio)
Video	<ul style="list-style-type: none">.asf and .wma (Microsoft Media Player)avi (Microsoft's Audio-Video Interleaved).gif (animated GIFs).mov (Quicktime)

Data sets are usually described by the author in some detail and are often in compressed formats. These might have the following compressed file extensions:

Unix	<ul style="list-style-type: none">.tar.gz.tar.Z
Macintosh	<ul style="list-style-type: none">.hqx.sit
Windows	<ul style="list-style-type: none">.zip

Process Overview

1. Make sure that you have provided a README file (in ASCII or PDF format) with the multimedia material. A sample of what is required and what should be sent by the author is located in Appendix A of this file. Two Word documents have been included for you to use in creating the README file: DatasetREADME.doc and PlayableREADME.doc. The README file must be submitted as a PDF or text document in order to be accessible to the widest audience.
2. The author should provide a notification in the paper itself to flag the reader that multimedia is present and how it can be accessed. This process is explained in detail in Appendix B, Creating Reference to Multimedia in the Paper, which includes samples of each notification type. It is up to the EIC, author and IEEE staff editor to determine the best method for handling the reference on a case-by-case basis.
3. Please notify your EIC or the staff editor at the IEEE when a paper contains multimedia. The earlier in the process we can make sure all the requirements are met, the less likelihood there will be delays.

Appendix A

Instructions for Creating a README File For Playable Multimedia Objects

There are two basic types of author-submitted multimedia objects: 1) playable files (such as .au, .midi, .mov, .mp3, .mpeg, .wav, etc.), and 2) dataset or collections of multimedia content. Playable files require some sort of client player software and are usually fairly straightforward to use. Data sets are inherently more complex, consisting of raw data, often with an accompanying program(s) to manipulate the data. The requirements for playable multimedia object submission are described below:

For *playable* multimedia objects, the author README file must include the following sections:

- a) **Description:** An overall description of the objects and what the audience can expect to gain by downloading them;
- b) **Size:** The total size of all objects, in kilobytes if less than one megabyte in size, or in megabytes if one megabyte or greater in size. This will allow IEEE to provide IEEE *Xplore*® users with information that will help them to make downloading decisions;
- c) **Player Information:** Provide the minimum version of the player software that is required to play the submitted files. Include the name of the software, the version number, and any special requirements for the player. For non-standard applications, please include what platform(s) is required along with more detailed information about interacting with these objects;
- d) **Packing List:** A complete list of all the files included in the set of multimedia objects;
- e) **Contact Information:** The author should provide contact information in case users have questions regarding the multimedia material.

Please note that your supplemental files will be compressed into a .zip file or .tar.gz file (as appropriate), including your README file, and will be placed on IEEE *Xplore* for users to access along with the paper. IEEE staff will make sure that all files listed are included, but will not provide support to readers on how to use the materials or troubleshoot them if there are problems. Therefore, it is important that the README file contain complete instructions for using the supplemental files and that all files work properly. Also, please make sure that the README file is in PDF or text format so that it is available to the widest possible audience of readers.

Instructions for Creating a README File For Datasets

There are two basic types of author-submitted multimedia objects: 1) playable files (such as .au, .midi, .mov, .mp3, .mpeg, .wav, etc.), and 2) dataset or collections of multimedia content. Playable files require some sort of client player software and are usually fairly straightforward to use. Datasets are inherently more complex, consisting of raw data, often with an accompanying program(s) to manipulate the data. The requirements for dataset or multimedia collection submissions are described below:

For multimedia datasets or collections, the author README file must include the following sections:

- a) **Description:** An overall description of the objects and what the audience can expect to gain by downloading them;
- b) **Size:** The total size of all objects, in kilobytes if less than one megabyte in size, or in megabytes if one megabyte or greater in size. This will allow IEEE to provide IEEE *Xplore* users with information that will help them to make downloading decisions;
- c) **Platform:** The platform required to use these files;
- d) **Environment:** The environment needed (operating system, version, particular libraries, compiler versions, DLLs, etc.);
- e) **Major Component Description:** A detailed description of the major components of the data set;
- f) **Detailed Set-up Instructions:** These instructions should be set up in a step-by-step format, including information on how to perform any necessary set-up. For example: creating directories, copying/moving files into particular locations, etc.;
- g) **Detailed Run Instructions:** A set of detailed instructions on how to compile or run any program(s) associated with the data set or collection, any special set-up of the computer environment required, etc.;
- h) **Output Description:** A description of the expected output of the program(s) so users will know if they are seeing what the author intended;
- i) **Contact Information:** The author should provide contact information in case users have questions regarding the multimedia material.

Please note that your supplemental files will be compressed into a .zip file or .tar.gz file (as appropriate), including your README file, and will be placed on IEEE *Xplore* for users to access along with the paper. IEEE staff will make sure that all files listed are included, but will not provide support to readers on how to use the materials or troubleshoot them if there are problems. Therefore, it is important that the README file contain complete instructions for using the supplemental files and that all files work properly.

Also, please make sure that the README file is in PDF or text format so that it is available to the widest possible audience of readers.

Appendix B

Creating Reference to Multimedia in the Paper

While there is no specific multimedia boilerplate text that needs to appear in all MM references, the reader needs to be informed that this material is available and given enough information to help them decide whether it would be useful. The process to follow is first, try to find the appropriate point in text where it makes sense to insert the footnote. This can be done in several ways, with an opening page footnote, as a footnote further on in text or in paragraph text, where it seemed the author was directly referring to his or her MM material.

Then, depending on the type of MM content (playable files, a data set or a collection of MM files), try to describe it succinctly but with reasonable detail. The idea is to very briefly describe the additional content that the author feels is essential to gain a complete understanding of the article. There is no single best way to do this. Three examples are included below to help in writing new descriptions.

The examples of MM references in text are as follows:

1. Opening page footnote (in the author affiliation block):

Manuscript received July 7, 2000; revised February 3, 2001. The work of P. Matsakis, J. Keller, J. Marjamaa, and O. Sjahputera was supported by the Office of Naval Research under Grant N00014-96-0439. The work of J. Keller was supported in part by the Humanitarian De-mining MURI Program from the Army Research Office under Contract DAAG55-97-1-0014. This paper was recommended by Associate Editor A. Bensaid.

This paper has supplementary downloadable material available at <http://ieeexplore.ieee.org>, provided by the authors. This includes six multimedia AVI format movie clips, which show natural scenes with linguistic descriptions. This material is 2.1 MB in size.

P. Matsakis, J. M. Keller, J. Marjamaa, and O. Sjahputera are with the Department of Computer Science and Computer Engineering, University of Missouri, Columbia, MO 65211 USA (e-mail: pmatsakis@cecs.missouri.edu; keller@cecs.missouri.edu).

2. A footnote in text:

The motivation for using synthetic images is that it is easy to have reliable pixel-based ground truth. More recently, some authors have developed evaluation methods using pixel-based ground truth on real images. Use of real images, rather than synthetic, should inspire greater confidence in the results.<footnote><p>This paper has supplementary downloadable material available at <http://ieeexplore.ieee.org>, provided by the authors. This includes the wood block and Lego house image data sets, a set of Solaris C programs for manipulating and interpreting the images, a setup script and readme file. This material is 34.3 MB in size </p></footnote>

3. A paragraph reference (not footnoted) with a sample image:

To explain the general ideas behind the approach presented here, we implemented and applied a KGSL system to 93 color images collected outdoors. As we proceed to the latter sections of this paper, these color photos will be used as an explanation aid. The color photos were collected using a Cannon Elan II camera and Kodak 35-mm color film. The camera's position was fixed throughout photo collection. Photos were collected under different light conditions: morning, noon and afternoon; sunny, cloudy, and rainy (see Fig.2). We have included a supplementary color MPEG file which contains four images taken at different times under different conditions. This will be available at <http://ieeexplore.ieee.org>.

Fig. 2. Sample of color image printed in gray level

Appendix C

Sample of Multimedia Files on IEEE Xplore

When your paper is posted to IEEE Xplore, you will see two buttons (Access Full-Text (PDF) and Access Multimedia) rather than the single "Access Full Text (PDF)" button. See the first screenshot below for an example.

The screenshot shows the IEEE Xplore Digital Library interface. At the top, there are navigation links for IEEE.org, IEEE Xplore Digital Library, IEEE Standards, IEEE Spectrum, and More Sites. The user is logged in as 'IEL Customer' with a 'Sign Out' option. The main navigation bar includes 'BROWSE', 'MY SETTINGS', and 'MY PROJECTS'. A search bar is prominently displayed. The article title is 'Image Reconstruction From Highly Undersampled (k,t)-Space Data With Joint Partial Separability and Sparsity Constraints'. Below the title, it states 'This paper appears in: Medical Imaging, IEEE Transactions on' and provides publication details: 'Date of Publication: Sept. 2012', 'Author(s): Zhao, B.', 'Department of Electrical and Computer Engineering and Beckman Institute for Advanced Science and Technology, University of Illinois at Urbana-Champaign, Urbana, IL, USA', 'Haldar, J. P.; Christodoulou, A. G.; Liang, Z.-P.', 'Volume: 31, Issue: 9', 'Page(s): 1809 - 1820', and 'Product Type: Journals & Magazines'. Two buttons are visible: 'Access Full Text (PDF)' and 'Access Multimedia'. A sidebar on the right contains a survey prompt: 'WANT YOUR COMPANY TO KEEP IEEE XPLORE? Take two minute survey and let us know! Start Survey'. At the bottom, there are social media sharing options (Download Citation, Email, Print, Request Permissions, Save to Project, Tweet, Share, Like) and an 'ABSTRACT' section.

When a reader clicks on the Access Multimedia button, he or she is brought to a screen that will describe the multimedia in more detail, including the title, volume, issue, DOI, and publishing date of the article it is associated with (see the screenshot below for an example). For more information about the multimedia materials, the reader may also access to the README file, which is required to accompany every multimedia inclusion.

The screenshot shows the 'Multimedia Downloads' page for the same article. The title is 'Multimedia Downloads'. Below the title, there are instructions: 'Click the Filename to open the multimedia object. Files may be compressed to optimize download experience. If you have any problems downloading, please review our Multimedia FAQ.' A box contains the following information: 'Object(s) are part of the following article:', 'Image Reconstruction From Highly Undersampled (k,t)-Space Data With Joint Partial Separability and Sparsity Constraints', 'Medical Imaging, IEEE Transactions on', 'Page(s):1809 - 1820', 'Volume : 31 Issue : 9 Date: Sept. 2012', and 'Digital Object Identifier : 10.1109/TMI.2012.2203921'. Below this box, it says 'Title: Not Available Description: Not Available', 'File name: tmi-2203921-mm.zip', 'File size: 1', and 'Author(s): Not Available'. At the bottom, there is a link: 'If you have any problems downloading this object, please complete the online Technical Support Form.'