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Annual Congress of the European Association of Nuclear Medicine - EANM'03, August 23-27, 2003, Amsterdam, The Netherlands

Control/Tracking Number : 03-T-556-EANM

Activity :Technologists Programme:

Current Date/Time : 3/14/2003 1:10:26 PM

XMedCon - An Open-Source Medical Image Conversion Toolkit

E. Nolf¹, T. Voet², F. Jacobs¹, R. A. Dierckx¹, I. Lemahieu³;

¹Nuclear Medicine, Ghent University Hospital, Ghent, BELGIUM, ²Radiology, Ghent University Hospital, Ghent, BELGIUM, ³Elis, Ghent University, Ghent, BELGIUM.

Aim:

Despite the existence of vendor neutral standards, exchanging medical images between different processing tools remain to many researchers a time consuming side-issue. It is thereby the project's objective to offer an accessible framework, specifically targeted at the intricacies of medical image conversion.

Material and Methods:

We therefore developed a toolkit with the following features:

- medical conversion

To resolve the conversion issue, support was added for widely used image formats (such as Analyze, DICOM and Interfile). A structure was designed to extract mutual data and to preserve important medical keys (such as patient info, voxel sizes, R-R cycles observed). Features are gradually implemented to comply with tool-specific requirements (file endianness, image orientation) or to support format peculiarities (quantitation, contrast).

- framework

The framework consists of a library that easily extends the work of others (cf. AMIDE). A flexible command-line utility provides in batch processing. And a graphical front-end enables simple display capabilities.

- accessibility

Foremost, dependencies have been limited to freely available libraries (libpng, ljpg) and toolkits (gcc, gtk+). Secondly, portability to different platforms was easily achieved with the GNU autotool developer utilities. The project currently runs on MS Windows, Linux, MacOSX and most other POSIX compliant operating systems. Finally, the project's entire source code has always been available on the web to further stimulate user feedback and collaborative development (see <http://xmedcon.sf.net>).

Results:

(X)MedCon is currently used in a lot of research groups as a bridge between varieties of processing tools. The project for instance serves as a front-end to Monte Carlo simulations, extending the

otherwise restricted number of medical image readers provided in such simulation packages.

Conclusion:

Based on its wide spread deployment we hereby conclude that the (X)MedCon project effectively helps researchers to overcome the format issue in search for improved medical image processing.

Topic (Complete): 908. Miscellaneous

Additional Information (Complete):

Presentation Preference : Oral or Poster

I agree : True

Status: Complete

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[European Association of Nuclear Medicine](#)

Lassingleithnerplatz 2/3, A-1020 Vienna, Austria

Phone (+43/1)212 80 30, Fax (+43/1)212 80 33

office@eanm.org

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