
Subject: Re: Registering CT and MRI volumes
Posted by [Randall Frank](#) on Sun, 04 Mar 2001 20:43:04 GMT
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Karthik,

One "standard" algorithm is Roger Wood's AIR:

<http://bishopw.loni.ucla.edu/AIR3/index.html>

Many of the more popular (particularly functional) imaging apps use variants of this approach. I have not seen it coded in .PRO yet (it actually could be done fairly efficiently), but the technique is very straight-forward and reasonably robust for small corrections. The functional imaging group I work with has had good results with it. I have been thinking about writing a DLM for it, but I was waiting until the next release which I hope will allow real-time use of the algorithm. My application is real-time fMRI. We use IDL (augmented with a lot of DLMs):

Smyser C, Grabowski RJ, Frank RJ, Haller JW, Blinger L, "Real-time multiple linear regression for fMRI supported by time-aware acquisition and processing", *Magnetic Resonance in Medicine*, Volume 45, Issue 2, 2001, pp. 289-298.

Not exactly what you were asking for, I hope you find some of it useful.

BTW: on your KB_ISOSURFACE, might I suggest adding a DLM to compute an "optimal" complete seed set for a given dataset? The combination of that and your KB_ISOSURFACE would yield a complete, high-performance replacement for the existing IDL DLM. I use a variant of this myself for N-D isocontouring. A good reference might be:

Bajaj CL, Pascucci V, Schikore DR, "Fast Isocontouring For Improved Interactivity", 1996 Volume Visualization Symposium, ISBN 0-89791-741-3, pp.39-46

Apologies for my long-winded response. Those of you who know me, know I can not help it...

karthik balasubramaniam wrote:

>
> reply-to: clunis_immensus@hotmail.com
>
> I remember spotting a thread on registering medical volume data,

> a while back. Unfortunately, I haven't been able to retrieve it at deja.com,
> which I've been using so far(only shows me recent postings).
> Anyways, I need to register CT and MRI volumes, and was hoping someone could
> point me to IDL(or even C/C++) code that does volume registration.
> I do have some literature on the topic, but thought it worthwhile sounding
> out
> people before reinventing the wheel.
> Any links, references, code would be immensely appreciated.
>
> Also, could someone recommend me a web-based newsreader where I could access
> old postings of this newsgroup?
>
> many thanks,
>
> Karthik Balasubramaniam
> CAS Technologies, Chennai
>
> -----
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rjf.
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