

The Society for Medical &
Biological Engineering S.A.
Incorporated



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NEWSLETTER

March 2001

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Affiliations

*Australian Federation for Medical and Biological
Engineering*

*International Federation for Medical and Biological
Engineering*

SCIENTIFIC MEETING

Tuesday 27 March 2001

11 Bagot Street, North Adelaide

5-30pm Refreshments

6-00pm Presentation

Craniofacial Imaging and Models

Dr. David J. Netherway

Apex Research Fellow

The Australian Craniofacial Unit

In the development of software for craniofacial morphometrics using computer tomography (CT) data a spin-off was being able to process the CT data for the production of solid nylon models of patient's skulls using a Laser Sinterstation. These models have been used for surgical planning and for custom design of prostheses and surgical devices. This presentation will outline the imaging and data processing steps involved in production of these life-size models and show some of their application in craniofacial surgery.

Prior to joining The Australian Craniofacial Unit (ACFU) in 1990 Dr. Netherway was first a Research Scientist, and then Senior Research Scientist at DSTO working on the Jindalee Over-The-Horizon Radar in the Surveillance Research Laboratory, Salisbury, SA. There he contributed to measurement and development of techniques for tuning multi-antenna transmitting arrays; developed impulsive noise suppression algorithms, investigated meteor head echoes; and developed major enhancements to ship detection and tracking software. Basically, he was heavily involved in radar signal and image processing.

After contributing to craniofacial morphometrics on an after hours basis for several years, he joined the Australian Craniofacial Unit in 1990 where he developed, with Dr. A. Abbott, the *Persona* computer tomography (CT) data measurement package. His current interests are in 3D medical imaging and 3D morphometrics.

Dr. Netherway's title, "Apex Research Fellow", is in recognition of the significant funding that the Apex clubs of Australia have provided the Australian Craniofacial Unit over 25 years.

IT'S BACK! FAMILY BARBECUE, PICNIC AND WINE TASTING

Our once popular family day out has returned. All members and their families are invited to a fun day at Kay's winery, McLaren Vale. This historic winery, with a long history of producing premium wines, is in an idealic setting with a lawned picnic area and sweeping views, just a short drive from the city. A tour of the winery, plenty of tastings and good food will be the order of the day.

The Society will be providing the lunch, being a barbecue meal with salads, the drinks, both wines and soft drinks, all you need to bring is a chair and a glass. And best of all it is FREE.

When: Sunday April 1, 11.00AM to 4.00PM (remember the end of daylight saving on March 31!!)

Where: Kay's winery, McLaren Vale. Take main South Road and veer left at the Victor Harbour turnoff after crossing the Onkaparinga River. Look for Budgens road shortly on your left which has the winery signposted. Follow the bitumen form this point ignoring dirt roads and intersections until reaching the Kay's sign at the top of a hill. See you there!!

What: You get the lot, i.e. meat, salads, bread sauce, plates and drinks

RSVP: We *must* hear from people who are coming so that we don't run out of food on the day. Please contact the secretary Robin Woolford on or before **March 28** and let him know how many people you will be bringing.

DRAGER/SMBE Biomedical Engineering Encouragement Award

The Council is pleased to announce that James Higham is the winner of this award for 2000. James is currently employed as a research officer in the Gastroenterology Department at the Repatriation General Hospital after completing his BME degree in 1999. James also worked at RGH as part of the Industrial Affiliates Program and worked on an RGH sponsored final year project.

Due to the length of this newsletter already and the fact that Jame's paper is 8 pages I will publish it in the next newsletter.

Now is a good time to start thinking about the award for 2001.

Newsletter by email

Those members who currently receive the newsletter in print but would be happy to receive it via email please let me know. My email address is on the front page of this newsletter.

There are advantages in getting it by email- you get to see all the colour pictures as they should be.

Advertising rates

Full page\$100.00	½ page\$50.00
¼ page\$25.00	Business card . \$25.00

CONFERENCE CALENDAR

"13th Triennial Cong Asia Pacific Orthopaedic Assoc"
April 1-6, Adelaide SA.

"Northern Territory Perioperative Nurses 4th Conference"
May 3 – 5 2001. Alice Springs

"EPSM 2001" Fremantle, WA. Sept 30-Oct 4

Information on the above is available from the editor or president

REPORT ON MEETING: DIGITAL TELEVISION

On the 6th Feb we were fortunate enough to have Bob McCullough Talk to the SMBE about the recent development of digital television. He came to us as a (very) recently retired Broadcast Engineer from the ABC. Bob's last couple of years were spent implementing the production and broadcasting of digital television to the stage it is now.

Although not many of us have been able to witness it, digital transmission is happening.

The main benefits of digital are as follows:
Multiple signals can be time multiplexed.
There is no loss of signal quality, either you can receive it or you can't.
The program content is much easier to store, delay and manipulate.
The signal can be compressed and error corrected.
Equipment will be much cheaper (in the future, for similar functionality).

After much debate between the industry and government, the DVB-T standard has been adopted. This means we use MPEG 2 as the compression protocol. The aspect ratio has changed from 4x3 for analogue to 16x9 for both Standard Definition (SDTV) and High Definition (HDTV). The frame rate of 25 f/sec remains but the resolution has increased to 1920x1080 pixels for HDTV and 720x576 pixels for SDTV. Because of the compression we can now apply to the signals, the 7MHz bandwidth (currently used per analogue channel) can carry either 3 SDTV programs or 1 HDTV program. Which protocol is transmitted (SDTV or HDTV) will be up to the station, changing on a programme by programme basis.

One of the early 'tangible' benefits of digital broadcasting is ability to include an Electronic Program Guide (EPG). The EPG in it's most basic form, replaces the TV guide, but can actually offer a lot more. The ability to search the guide by interest group is one obvious benefit eg. Sports fans can search for all sporting programs in a given time frame.

Bob spoke about the television as though it were to become a PC and about the terrestrial transmission as a data pipeline into our homes. Storing television programs on a hard drive within the TV for time shifting, perhaps vetting the topics on the news to eliminate the stories your not interested in are possibilities. The interactivity of television is almost guaranteed, with the ability to 'play along' with your favourite quiz shows (via the internet) or download and print the recipe you just saw cooked on the cooking show. The ability to purchase tickets to a show by the band you just watched is just another possibility. How far the ability to 'datacast' will actually go is another political hot potato, with commercial TV stations and big business both lobbying the government. The fact that 3 SDTV programs can fit onto the allocated 7MHz bandwidth means that each of our 5 digital broadcasters can have 3 simultaneous programs. It would appear, at this stage, that the government will limit this to one

entertainment programme with the other two perhaps being used for educational and information streams.

The flavour of the evening was certainly one of 'Watch this space' as digital television evolves, shaped by the commercial viability and not particularly limited by the technology. As the commercial stations try to use the change to digital as a vehicle to greater profits we will definitely see a very different system from the one we currently have.

Drager/SMBE(SA) Biomedical Engineering Encouragement Award

Nominations are being sought for this very worthwhile award.

PHILOSOPHY

This annual award is to be made as a means of acknowledging and encouraging excellence amongst Biomedical Engineering practitioners.

PROCESS

The recipient shall be selected by the council of the SMBE (SA) and a representative of Drager Australia from amongst candidates who shall:

Be nominated by a peer who deems them worthy of such recognition, and,

Author a short technical or topical article on a subject either nominated by themselves or chosen from a list provided by the council for publication in its newsletter.

THE AWARD

The award shall comprise a funded visit to the annual SMBE (NSW) technicians seminar. Albury in March 2001.

CONDITIONS

Open to all BME practitioners, from within SA and the NT, be they SMBE members or not. The recipient must be in a position to attend the seminar, in either their own or employers time. The award may be forfeited if this requirement cannot be fulfilled. The nomination by a peer must give a clear indication or evidence of the nominees abilities, skills, motivation or commitment that, in their mind, sets them apart and makes them deserving of particular recognition.

Individuals holding position of the council of the SMBE (SA) at the time of judging are ineligible for consideration. All entrants are eligible for minor awards of complimentary SMBE (SA) membership for a one year period.

The SMBE (SA) council reserves the right to not make the award whether the submitted articles have been published or not.

E.&O.E.