



SMBE AGM



The 2012 SMBE SA AGM was again held at Waverly House, St Andrews Hospital, South Terrace, Adelaide on the 13th August.

A/Professor Neil Langlois trained in forensic pathology in the UK and Australia. He held a consultant position in NSW for 9 years before moving to work at Forensic Science South Australia in 2008. He has performed thousands of Coronal post-mortem examinations and consequently has presented evidence at numerous court cases, including murder trials. He is chair of the Royal College of Pathologists advisory committee for forensic pathology and organises the programme for College scientific meetings. In addition to his work at Forensic Science he holds a conjoint Associate Professor title with the University of Adelaide and is actively involved with research, currently pursuing his interest in bruises with Adelaide and Flinders Universities.

Neil shared a fascinating insight into Forensic Pathology here in South Australia. His presentation was titled "Forensic Pathology – Reverse Engineering?" and it offered an honest account of his work and involvement within his field. Neil dedicates an immense amount of time to his profession and we were very fortunate to have him present to the society, especially after he managed to escape from his responsibilities at court just a short time before the AGM! Neil contributes to processing over 1000 autopsies in Adelaide and his work is state wide. He remains at all times accountable to the requests of the coroner and a significant aspect of his profession requires him to spend a

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lot of time in court to testify evidence in murder trials at the requests of lawyers. It was very humbling to learn certain science aspects of Neil's work that were otherwise assumed to be extremely advanced thanks to the misconceptions offered by forensic shows on television. Myths and assumptions on establishing a very definitive time of death were dispelled. In fact, implantable pacemakers offer the most reliable method of establishing time of death. The cause of death can be very subjective as well. Every week there is always something new Neil has not seen before, which is quite astonishing considering his experience and the amount of autopsies performed each year. This confirms that all people are different. In saying all of this, Neil has taught himself to always be suspicious with his work, however, he reiterated throughout his presentation and discussions that common things are common. Natural deaths are the predominant conclusion of his work.

Neil's presentation was very well received by all present.

Lachlan Eberhard

SMBE SA President 2012

Presidents Report

SMBE President's Report 2012 AGM

1. Membership.

Membership levels were maintained this year and the treasurer's report has details of member numbers.

2. 2011/2012 Technical Program:

JUL 2011: Technical Talk.

Assessment of Cardiac Sympathetic Activity based on the Electrocardiogram. Presented by Dr. Mathias Baumert, University of Adelaide.

AUG 2011: SMBE AGM.

Medicine & Engineering; A Difficult Marriage with Beautiful Children. Presented by Dr Joseph Smith, Chief Medical Officer and Chief Science Officer, West Wireless Health Institute, San Diego, USA. Courtesy of Engineers Australia (EA) Eminent Speaker Program and jointly presented by SMBE, Engineers Australia and ACPSEM.

AUG 2011: EPSM- ABEC Conference.

14-18th August 2011, Darwin, Northern Territory, Australia.

AUG 2011: Technical Talk and Site Visit.

Intuitive Surgical – daVinci Surgical System, Royal Adelaide Hospital 2nd Site Visit. Hosted by Dominic Breuker; Device Technologies Product and Education Manager.

DEC 2011: 2011 Student Paper Night.

A public speaking competition for Engineering and Medical Physics students. Congratulations to SMBE Vice President Tony Carlisle for winning the Biomedical Engineering Category 1st Prize.

DEC 2011: Christmas Dinner.

Thanks to Dan Fletcher & Vera Townsend for organising this event at The Queens Head Hotel, North Adelaide.

FEB 2012: Site Visit.

Coopers Brewery. Hosted by David Medlyn; Coopers Brewery Systems Integration Manager.

FEB 2012: Technical Talk and Site Visit.

Ellex Medical – Eye Surgery Laser Systems. Hosted by David Haarhoff; Ellex Medical Engineering Manager.

MAR 2012: Technical Talk and Site Visit.

Flinders University Hexapod Robot System. Hosted by Dr John Costi & Mr Richard Stanley; School of Computer Science, Engineering & Mathematics, Flinders University.

APR 2012: Technical Talk.

Lasers in Ophthalmology. Presented by Dr Stewart Lake; Vitreoretinal Surgeon, Department of Ophthalmology, Flinders Medical Centre.

APR 2012: Technical Talk.

Surgical Robots & Intelligent Diagnostics for Minimally-invasive and Non-invasive Surgery, University of Adelaide. Presented by Sunita Chauhan; School of Mechanical & Aerospace Engineering, NTU, Singapore.

Jun 2012: Technical Talk and Site Visit.

BOC – Torrensville Production and Operations Plant. Hosted by Christine Katic; BOC Operations and Product Manager, and Chris McNichol; BOC Customer Engineer Manager.

3. SMBE Australia website.

The website has been the main source of information for SMBE members across Australia. This has been complemented by event emails distributed to financial members who have offered their email contact details. During the year, Anne-Louise Smith has passed the Webmaster knowledge onto Council Member Robin Woolford, who has accepted to continue the role. On behalf of the committee we wish to thank Anne-Louise for her contribution to the SMBE in various roles over the last 10 years and also to thank Robin for the work he has done to keep the website up to date.

The year 2012/13 will see the development of a SMBE facebook page. The committee has discussed the use of social media to attract new members, advertise events and create discussions amongst members and non-members alike. This will also be an important tool to help connect SMBE members nationally.

4. Newsletters

The committee has put together three newsletters last financial year to advertise SMBE events and news. Thank you to the committee and our award winners for assisting me by creating newsletter articles. Special thanks go to Immediate Past President Olivia Lockwood for her continued support by collating and editing newsletter articles during her leave.

5. Awards

The **SMBE ABEC Travel Grant** was continued after its conception last year. This year, the conference is held in Brisbane, 17-19th September 2012 and the committee decided on a single placement to replace the three on offer last year. The award provides an opportunity for a successful applicant to be reimbursed up to \$1500 for travel, accommodation and conference registration fees. Preference is offered to SMBE members who were accepted to present at the conference. Due to the lack of responses, selection criteria were relaxed to allow any interested biomedical students to apply. This year, the travel grant was awarded to Flinders University student Isaac Lawless; a research assistant under the Biomechanics and Implants Group, The Medical Device Research Institute, School of Computer Science, Engineering and Mathematics, Flinders University. Isaac will be contributing a newsletter article relating to his 2012 ABEC experience.

The **SMBE Biomedical Engineering Scholarship Award** for 2012 was awarded to Mr David Hobbs; School of Computer Science, Engineering & Mathematics, Flinders University. David has been accepted to present at The Australian Rehabilitation and Assistive Technology Association (ARATA) conference, 22-24th August 2012, and will be reimbursed up to \$1000 in travel and accommodation arrangements. His presentation is titled "*Game on! Accessible gaming for children with disabilities*". He will be contributing a newsletter article and offer a presentation to the SMBE about his conference experience.

The **SMBE Biomedical Engineering Encouragement Award** for 2011 was not awarded. The committee will be calling for nominations near the end of the year for the 2012 round.

The **SMBE (SA) Outstanding Honours Project Award** is awarded to a biomedical engineering student for their superior work towards their honours project. The award is based on practicality of the design, project development and outcomes and explanation of work at the Flinders University Expo Day. The award is in the form of a \$500 cash prize, a certificate and 12 months free membership to the SMBE (SA). The 2011 award was not issued. The 2012 award winner will be determined at the Flinders University Expo day in November this year.

6. Finally, I would like to thank the SMBE committee for their support during my first year as President. Thanks also to all our members and sponsors for helping us to host events and maintain our technical program, which we are proud of. A special thanks to the contribution and efforts of our Secretary Donna Weckert who has decided to stand down from the committee this year as she pursues her studies and career in medicine.

Lachlan Eberhard
SMBE SA President 2012

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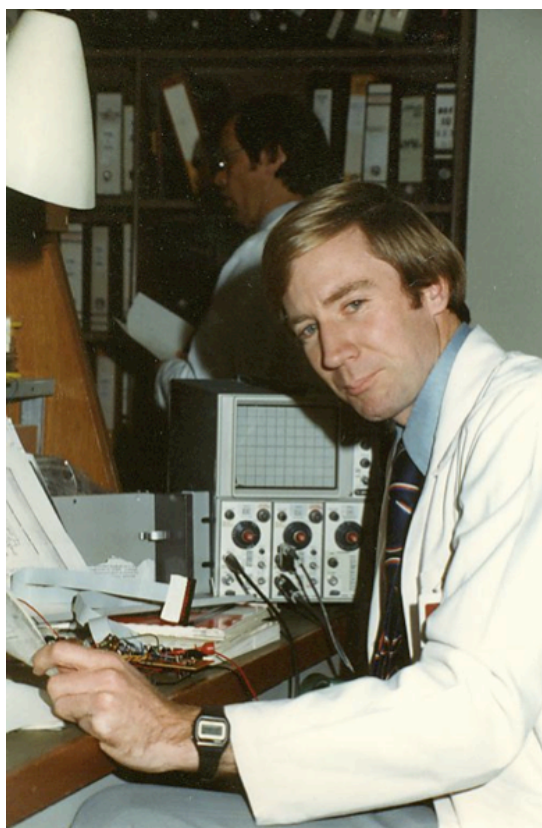
SMBE Life Membership - Graham Elsegood

The work history of Graham Elsegood is really a history of the Royal Adelaide Hospital Biomedical Engineering Department (RAH BME).

The RAH's first Medical Electronics Service was part of the Cardiovascular Investigational Unit in the 1960's with Dr Peter Hetzel as Director. This medical equipment repair service comprised of only a handful of people led by Neville Martin, other staff included Bert Stacy, Peter Senn and Robert Wiseman. In 1971, Graham and John Hogarth joined.

Graham's first position started as a 4 year radio trade apprenticeship. His first pay sheet was around for \$22/week, which was a lot of money in those days! The following consecutive years saw the yearly intake of new apprentices including Ray Liddle and Adrian Richards who are still involved South Australian biomedical engineering today.

Graham's early career work duties included the weekly Friday ritual of filling ink wells of chart recorder pens on the Electrocardiograph ready for weekend use, as well as setting up valve operated Physiological Monitoring equipment used in the Cardio-Thoracic



Operating Theatres for open heart surgery procedures.

After completing his apprenticeship at Kilkenny Technical College, Graham went on to complete the Electronic Technicians Certificate in 1976 as valve component equipment became superseded by transistors.

Further technological changes with the introduction of computers and Integrated Circuits required further study and he completed the Associate Diploma in Electronic Engineering in 1979 at the Levels Campus of the Institute of Technology now called the University of South Australia (Mawson Lakes). Other qualifications included Certificates in Training Methods & Delivery and some business accountancy subjects.

In January 1981 the RAH Medical Electronic Service combined with the Hospital's Surgical Instrument Service to become the Biomedical Engineering Department as it is known today. By 1990, RAH BME had 44 staff members and a new Director, Phill Thorburn.

RAH BME has seen many staff pass through its doors, and from their RAH experience, they have gone on to contribute further to the biomedical engineering cause such as recognised SA BME staff of Robin Woolford, Glen Kennett, Rebecca Jucha, and many other commercial biomedical service personal.

Through his conscientious and practical work skills, Graham was also promoted to various leadership roles:

- starting as a Team Leader in 1981
- Division Manager in 1988
- Training & Development Manager in 1998
- and more recently, since October 2010 acting as BME Director for 1 ½ years during the initial formation and consultancy meetings of the new SABME shared services.

Training and encouraging new staff was one of Graham's forte's and his role of Training & Development Manager between 1989 to 2010 was greatly appreciated by many staff who have passed through the RAH.

Coming from a background where there was no internet or limited biomedical engineering books he sought and absorbed considerable biomedical knowledge and unselfishly shared this with his colleagues and new staff who were involved in his extensive practical training programmes.

Graham also holds a licence for operating forklifts as part of the support requirements for RAH's medical gas system.

Various other committee participation included chairperson of the Hospital's Medical Gas Committee and participation in the RAH Anaesthesia Equipment committee, as well as the RAH OHS&W committee.

There was a time when Graham had managed and maintained every piece of medical equipment in the RAH. He also introduced an alternative strategy for the maintenance of medical equipment and their power cables, and presented a paper on the results at the national biomedical engineering conference in Canberra in 2009.

41 ½ years later, right up to his retirement day, Graham still had a passion for biomedical engineering. He didn't have to change jobs as the job change around him with the evolution of biomedical equipment technology and associated clinical procedures.

Specifically to SMBE SA:

- *Graham signed up around 1972 (that's 40 years of loyal membership!)*
- *Treasurer from 1983-85 after receiving the responsibility from Paul Grigg (of Medtel at the time) and passed it onto John Kirby. Chris Penhall was the President.*
- *President 1985/86.*

Graham recalls:

- *To save a drop in participation numbers at SMBE SA committee meetings, Graham started the idea of providing food at the AGM. Big yummy cakes from "Sweet Temptations". Apparently, that revived a fair bit of interest and everyone present this year's AGM can testify that the tradition is still alive and exceeding expectations!*
- *While being President of SMBE SA, the RAH hosted an all-day Electrical Safety Workshop on a Saturday with about 120 attendees from technical, engineering and nursing backgrounds from a variety of local hospitals. Graham remembers it being a great success and the society benefited well financially.*

Graham is nature's gentleman and has left an indelible mark on the history of RAH BME. The Biomedical Engineering profession in SA has benefited immensely from his experience and education. He has been missed already, but on behalf of the SMBE SA committee we all wish you all the best in retirement.

Graham received a bottle of wine and a framed Membership Certificate to recognise his induction to SMBE SA Life Membership.

From his colleagues at the RAH, he was presented with a permanent magnet moving coil meter movement named the "Work-O-Meter". The meter had bridged inputs and has been perfectly calibrated to zero.

Lachlan Eberhard
SMBE SA President 2012

SMBE Committee Positions

This year, the SMBE committee needed to fill the role of President, Secretary, and three (3) council positions for the 2012/14 term. Besides Donna Weckert who has stood down from the committee, those who held previous positions remained.

Nominations were received for the following committee positions;

- President; Lachlan Eberhard
- Secretary; Vera Townsend
- Councillors; Adrian Richards, Robin Woolford, Maged Shedouda

Due to the promotion of Vera to Secretary, Hatice Kalkan of Covidien was nominated and accepted the remaining 12 months of Vera's term on the council.

All committee positions were elected unopposed. Congratulations to all office bearers.

Thanks to

Our thanks and gratitude goes to our 2012 SMBE AGM guest presenter, highly regarded Forensic Pathologist Neil Langlois. The committee look forward to seeing Neil again, next time as a member of the society. The SMBE is also grateful for the efforts of Colin Underwood, Director of Programs at the Carnegie Mellon University Adelaide, for introducing Neil to the society. Also, thanks to Maged Shenouda for organising Waverly house and Vera Townsend with Daniel Fletcher for organising the generous catering on the evening. Again, thanks to Donna Weckert for her competent and professional contribution to the society over the last two years as Secretary. The committee wishes Donna well in her studies and career in medicine.

Lachlan Eberhard
SMBE SA President 2012

BOC Site Visit

The evening of June 12th saw more than a dozen SMBE members and guests visit the facilities of BOC gases at Torrensville for a guided tour and some informative talks. This plant produces and distributes a number of products including, of particular interest to us, medical gases.

The evening commenced with a guided tour of the plant that gave us an immediate insight into a couple of things. Firstly the companies deep seated



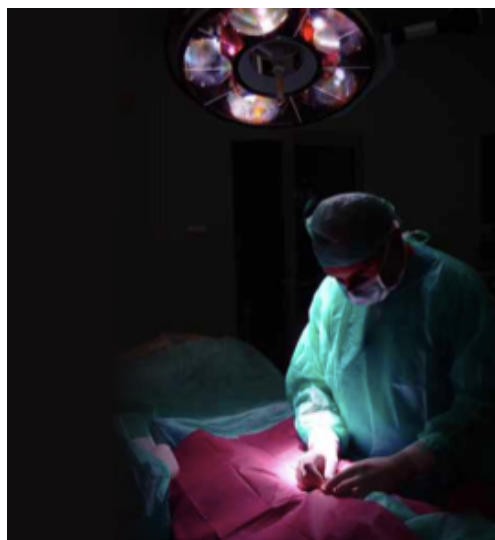
commitment to safety and quality, with clear evidence of this at every turn. Secondly the magnitude of the operation with many 100's of 1000's of litres of liquefied gases and up to 10,000 cylinders on site at any point in time. The facility runs multiple shifts to ensure that the company's philosophy of "order before 5pm for next day delivery" can be met, so we saw a number of areas in full swing and were able to have a bit of a "play" with some liquid oxygen. No actual production of the major products, being nitrogen and oxygen, take place at Torrensville, with SA production being based at Whyalla to meet the needs of a major customer, OneSteel. Distribution around the state and country is subsequently by road. The plant at one time did produce acetylene for industrial use, but this has been relocated to Sydney, centralising a very high risk operation. BOC in Australia produce and supply some 16,000,000 cubic metres of oxygen per annum. Some of the more interesting facts that came to light during the evening included:

- All cylinders are bar coded to facilitate traceability, with BOC Gases having tagged approximately 2,000,000 cylinders to date. One trial recall exercise is run per annum to ensure that the processes work
- The facility is audited by the TGA every two years as medical gases come under their jurisdiction.
- Cylinders are tested typically every 5 years and at times more frequently by an automated robotic facility in Sydney
- A relatively new size of cylinder is being progressively introduced, the B size, that holds approx. 270 litres of oxygen, being used increasingly by first response ambulance staff.
- Dry ice production recently commenced on site to supply users that need to preserve samples at low temperatures and an emerging industry that uses this product rather than abrasives for blasting/cleaning purposes.
- Once gases have left the bulk storage containers, industrial and medical products are handled quite separately right through to filling and testing functions. Medical gas cylinders are emptied and evacuated to ensure pure contents.
- Cylinders will typically be filled 4 to 5 times per annum, but there are a significant number that see very little use and do not get re-filled for many years.
- BOC staff are as frustrated as many users by the new white colour scheme for medical gas cylinders being designated by the letter N on the cylinder. It was an interesting story as to how this came about (being a flow on effect from some European standards), but there are moves within the industry to remove it as a requirement.



The evening was a very worthwhile event that was hosted by three senior BOC staff who were able to not only provide an outstanding insight into how their organisation operates, but also handle very wide ranging and in-depth questions, with the discussion around these adding greatly to the evening. Some fine food was also provided, rounding out a fantastic visit. There is talk of the possibility of repeating this evening at some stage next year, if you missed it this time around, do not hesitate to book yourself in next time it appears, you will not be disappointed.

Adrian Richards
SMBE SA, June 2012



AS/NZS 3003:2011, Electrical installations - Patient area WORKSHOP

The revised standard AS/NZS 3003:2011 "Electrical installations – Patient areas" was released on 1st April 2011, and compliance with the new standard has been required since this date for new installations and completed work.

The standard applies in all locations intended for the use of low-voltage medical electrical equipment (except where it would only be used in emergencies or for transporting patients). Compliance with the standard is a legal requirement throughout Australia.

The workshop will include presentations from key members of the Standards Australia Committee that developed the revised standard. It will provide guidance on practical application of the standard, outline differences to the previous 2003 version, allow for questions from the audience, and provide an opportunity for discussing suggested amendments to the standard.

WHEN?

Tuesday 30 October 2012, 9.30am-4.30pm, Engineers Australia Level 11, 108 King William St Adelaide SA

More information will be available soon.

Hosted by the EA Biomedical College www.engineersaustralia.org.au/biomedical-college

Lasers In Ophthalmology

EA and IET REG (Retired Engineers Group) presentation on "Lasers in Ophthalmology"

A presentation by Dr. Stewart Lake FRANZCO, FRCOphth (UK), MB ChB (Hons), BMedSci, Vitreoretinal Surgery, 12th April 2012, Engineers Australia, King William Street. Some 50 mostly retired engineers attended a very interesting presentation by one of Adelaide's finest and most experienced Vitreoretinal Surgeons, working at FMC. Lasers in ophthalmic surgery dating back to Albert Einstein and the Maiman ruby laser of 1960, a method for repair of retinal holes in 1962 by Campbell & Zweng; to the modern Femtosecond lasers of today and tomorrow. Dr. Stewart discussed and explained the various diseases and problems of the human eye and the various methodologies using lasers and phacoemulsifiers used and the surgical techniques applied.

Diagnostic lasers used for scanning the eye and the use of Adaptive optics for very high definition of ocular tomography. A wide range of therapeutic procedures and systems are available to the modern surgeon, for example:

Photo coagulation – using light energy to heat tissue causing thermal structure changes.

Photo disruption – using high energy peak power to ionise target tissue.

Cataract surgery – to emulsify and remove “aging” lenses and replace with a plastic lens. This is the most successful type of surgery in the world performed today.

Photo ablation – removal of part of the cornea to “smooth” and reshape causing no thermal damage using an excimer laser.

Diabetic retinopathy using an argon laser and pan retinal coagulation works by reducing the demand for oxygen by blood vessels by typically coagulating between 1000 and 2000 “burns” to the eye.

Diabetic macular treatment using laser and retinopathy prematurity where hypoxia results from the removal of oxygen to the young newborn. The treatment causes scar tissue to develop, but saves the infant’s vision with new blood vessels eventually forming over the scar tissue.

Retinal tears, which may occur from the age of 30+ and when the gel (vitreous) starts to break up and leads to “floaters” and can also lead to retinal detachment.

Vitrectomy – removal of the vitreous.

Photodynamic therapy – the introduction of a chemical into the eye which reacts with laser. Used for macular degeneration.

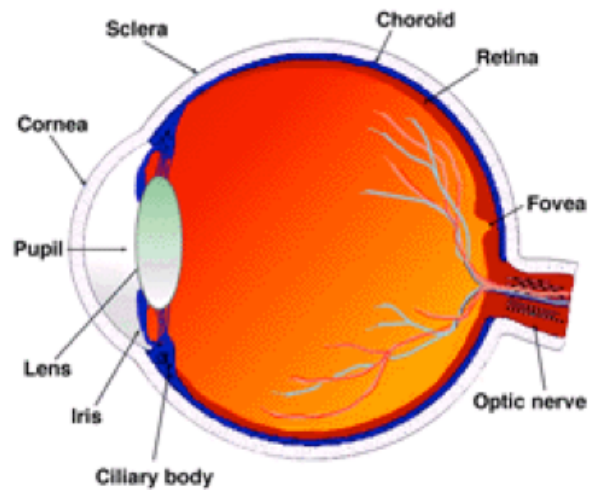
Photo disruption – posterior lens capsule causing a build up of pressure in the eye leading to acute glaucoma. Punctured using an argon laser.

Capsulotomy – using aneodymium-yag laser to puncture the lens capsule anteriorly.

Trabeculoplasty – for chronic glaucoma where very high intraocular pressure (up to 60mmHg) and causes great pain. Cured using an argon laser attached to a slit lamp.

Photo ablation – (Refractive surgery) is done using an excimer laser, LASIK (*laser-assisted in situ keratomileusis*) Known as “laser surgery, is used to treat correcting myopia, hyperopia, and astigmatism. A flap of the outer portion of the cornea (about 0.1mm) is first removed and the corneal tissue is reshaped, changing the optical properties of the eye. The flap is then replaced.

The future? More accurate surgery – robots and the new generation of lasers – the femto second for more precise and less invasive procedures. Dr Lake answered many questions from members who all showed their appreciation for an interesting and well-presented session.



Future SMBE SA meetings being organised:

- South Australian Health and Medical Research Institution (SAHMRI) technical talk
 - St Andrews Site Visit
 - AS3003 Roadshow
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Surgical Robots

Michael Smith (Flinders Medical Centre) attended a talk that was advertised on the SMBE SA mailing list "Surgical Robots & Intelligent Diagnostics for Minimally-invasive and Non-invasive Surgery" hosted by the University of Adelaide and presented by Dr Sunita Chauhan; School of Mechanical & Aerospace Engineering, NTU, Singapore. Michael also attended the DaVinci Site Visit last year at the Royal Adelaide Hospital. He has taken some notes about the future of surgical robotics and offered this article to share. Thank you Michael.

There are few technologies with more sex-appeal than gleaming surgical robots. For those who decide when and how healthcare funds are spent on robots, the challenge is to see through the marketing hype and groovy electro-mechanical couplings to the real, functional advances beneath. Dr Sunita Chauhan from the Nanyang Technological University recently visited Adelaide University and gave a lecture showing how her research teams are busily pushing back the frontiers of surgical robotics.

The Royal Adelaide Hospital has its own surgical robot: one of the *DaVinci* models, which Dr Chauhan assured us is a master-slave system, rather than a true robot. Machines of this type only mimic a human controller and do not have a decision-making part. A look behind the brushed steel exterior of this robot shows that its major design feature is its ability to present a more ergonomic interface to surgeons carrying out keyhole-surgery, who otherwise would view their surgery on a TV screen with their hand motions reversed.

The true advantages of robotic surgery seem not to be in the immediate focus of Dr Chauhan's research group. I dream of a robot with a high-speed position-control system might be able operate on a beating heart while presenting the surgical team with a stationary cardiac wall. Or perhaps automate the complex movements involved in tying sutures. Automation and control are the hallmarks of industrial robots, why not surgical robots too?

Instead, Dr Chauhan's work is focused on minimally-invasive surgery, such as non-contact surgery and surgery through existing orifices. Her current masterpiece is a focused-ultrasound ablation, which works by using an array of ultrasound crystals, arranged so as to heat tissue at their focal point. While clever tricks have been done with the system, such as writing words in tissue, the closest the new method comes to true robotics is its ability to dynamically adjust to the breathing movements of a kidney under treatment.

Perhaps this is the beginning of a movement towards exploiting the capabilities of robotics, but it seems more like a new kind of surgical tool rather than a step towards automated surgery. This is a shame, since surgical robotics hold so much promise in terms of shorter patient recovery times, smaller incisions and greater surgical precision. For the full exploitation of machine control and automation in the delicate arena of human surgery, we may have to wait a long time.

Michael Smith
Flinders Medical Centre, May 2012

SMBE Stubby Holder Design Competition

Here is your chance to receive a year's free membership to SMBE SA!

This year, the SMBE will be offering a limited number of stubby holders as promotional material and gifts at the Christmas show as well as university networking days. The SMBE committee would like to

continue a new design each year. Whether it be words, pictures or both, you decide!



We are accepting design submissions until the end of October. The design which is judged the best and most relevant by the committee will be placed on the inaugural SMBE stubby holder and be remembered as the first ever SMBE SA promotional material!

Please forward all design submissions to secretary@smbe.asn.au by October 31st 2012. The winning design will be revealed at this year's Christmas show.

Happy designing!

SMBE Awards

The 2012 **SMBE \$1500 ABEC Travel Grant Award** was won by Flinders University student Isaac Lawless; a research assistant under the Biomechanics and Implants Group, The Medical Device Research Institute, School of Computer Science, Engineering and Mathematics, Flinders University. Isaac will not be presenting at the conference this year but looks forward to attending the presentations and networking with other people with similar interests. The SMBE congratulates Isaac for his successful application and looks forward to learning about his experience, which will be published as a future newsletter article.

The 2012 **SMBE \$1000 Biomedical Engineering Scholarship** was awarded to Mr David Hobbs; School of Computer Science, Engineering & Mathematics, Flinders University. David was accepted to present his research at The Australian Rehabilitation and Assistive Technology Association (ARATA) conference, 22-24th August 2012. David's presentation is titled "Game on! Accessible gaming for children with disabilities". The SMBE also looks forward to learning about David's experience in a newsletter article and provide a presentation to the society at a later date.

Don't forget that you may be entitled to apply and be selected for being subsidised up to \$1000 to attend or present a paper at a conference or institution selected by you! The scholarship is open to all SMBE (SA/NT) members who have been members for at least three years. Please refer to our website www.smbe.asn.au

SMBE (SA) Encouragement Award

Do you know someone who deserves to be recognised for their endeavour and enthusiasm within the field of Biomedical Engineering?

If you know of a worthy recipient who would benefit from the recognition, or if you think you are that person, we encourage you or a peer to submit a SMBE Encouragement Award nomination form. They are available on line at www.smbe.asn.au and forms will also be made available at the

Christmas dinner. The award is open to all Biomedical Engineering practitioners and incorporates one year free membership to SMBE as well as a funded visit to a Biomedical Engineering conference or seminar.

As a recipient of the then Draeger sponsored SMBE award in 2004, I have been fortunate to actively progress with my responsibilities within the society, have opportunities to meet people with similar interests and promote the career I enjoy. At the time of receiving the award, I was studying the undergraduate Bachelor of Science, Bachelor of Engineering (Biomedical) at Flinders University part time and working fulltime at the Royal Adelaide Hospital Biomedical Engineering Department. As a result of the award, I was fortunate to be given registration for the 2005 Australian Biomedical Engineering Conference and the recognition offered by the award helped me to concentrate and continue to perform well with my study while managing a full time work load for the next 7 years. This encouragement and recognition can help someone you know and I strongly recommend taking the time to submit a nomination for that person.

Lachlan Eberhard
President SMBE SA/NT

\$1000 Biomedical Engineering Scholarship

Don't forget that you may be entitled to apply and be selected for being subsidised up to \$1000 to attend or present a paper at a conference or institution selected by you! The scholarship is open to all SMBE members from within SA and the NT who have been members of the SMBE (SA) for at least three years. Please refer to the website www.smbe.asn.au



Membership Certificates

Are you a SMBE member without a Membership certificate? Would you like to update your email or contact details? If so please email the SMBE secretary: secretary@smbe.asn.au
A membership certificate will be made for you and formally presented at our next technical meeting.

Newsletter Articles

Would you like to leave feedback or comments about the SMBE SA newsletter contents? Maybe you have an interesting article to share? If so, please contact the SMBE SA secretary secretary@smbe.asn.au We look forward to hearing from you!

Council Positions 2012/2013

President / Membership Officer	Lachlan Eberhard
Immediate Past-President / Newsletter Editor	Olivia Lockwood
Vice-president	Tony Carlisle
Treasurer	Dan Flelcher
Secretary	Vera Townsend
Council	Greg Smith
	Robin Woolford
	Maged Shenouda
	Adrian Richards
	Hatice Kalkan
Webmaster	Robin Woolford