Summary of April Address

Guest Speaker Chris Vonwiller Subject: *"Will Computers ever understand Humans"*

For those not already aware, Peter North's introduction made clear the calibre of our Speaker. A global leader in speech and language processing technology, Appen Pty Ltd, jointly chaired by Chris and his wife Dr Julie Vonwiller, was honoured as the Prime Minister's Exporter of the Year in 2008. Appen had earlier won the NSW Premier's Exporter of the Year award across all categories, its specific category in both awards being Information and Communications Technology (ICT). Currently Deputy Chairman of The Warren Centre for Advanced Engineering at Sydney University, Chris was made an "Innovation Hero" by that Centre in 2007. Serving 20 years with Telstra, Chris played a leading role in development and deployment of innovative Internet services, multimedia and pay television and led the creation and introduction of Telstra's Internet Service, Big Pond. He was listed as one of the "Top 100 Australia's Most Influential Engineers" and Engineers Australia Sydney Division "Entrepreneur of the Year" in 2008.

So, were we bamboozled with technical jargon completely over our laymen heads? Definitely not, but we were entertained and informed about a very technical subject in a very clear and informative presentation.

To the question "Can you currently design computers that can fool humans to think that a computer is a human?" the answer is "not yet". But the answer is "yes" to the question "Can you design computers to understand humans?"

He gave us a brief outline of "Appen's" operations in the world of computing/linguistics, their recruiting of high calibre university graduates, and being virtually a 100% exporter with major clients including governments, defence, and major commercial businesses such as IBM and Microsoft. Our technology is world class, and a tribute to our education system in general, and tertiary level in particular. His company rides on the back of skills in both linguistics and computing.

From the 1930's and 1940's, Chris led us through the background to the current situation, recalling a visit to Bletchley Park in England, home of the decryption team who broke the codes of the German Enigma and Lorenz machines during WW2. This endeavour is considered seminal in the history of both linguistic skills and computing. Research in the 1960's involved machine translation and word processing, but it was very primitive single digit speech recognition, also computers generating primitive text and speech synthesis.

Serious commercial production in the 1990's resulted from huge increases in computer power, much more efficient algorithms, a national language and large data bases of training material. Today, speech recognition is applied in service based operations such as call centres and embedded as in the automobiles. Further development and expansion of this facility in motor vehicles will assist overcome dangers of distraction in operating physical switches. High cost automobiles already have some 80 computers installed. Chris touched on the development of text processing, machine translation, and handwriting recognition and the consequential further development of Microsoft thesauri etc.

He indicated how government and defence applications in these fields were about 5 years ahead of commercial applications, with government applications including such processes as intelligence systems, homeland security and hand held units providing speech to speech real time translation. The future will see a move away from SMS on mobile phones to speech recognition for such messages, voice search for Google, intelligent text process and intelligence analysis.

Since 1996, Appen has been operating in the field of computational linguistics, occupying a deep global niche in providing high-end fusion of the components as builders of

Australian resources in languages and technical systems. As well as Sydney, they have operation centres overseas including Bangalore, Peshawar, Amman and Naples and they work in over 100 languages.

The challenges faced include speech recognition in different environments, colloquial languages without accepted written format, unusual languages and content extraction from large volume databases. Chris gave as an example Arabic which is written from right to left, is in 3 different forms, different local influences, unintelligible speech problems, and issues of vowelisation, pronunciation and romanisation.

Appen is involved in intelligent text processing providing outcomes such as author profiling, content extraction and attitude and sentiment analysis. He explained how the words and grammar commonly used by different age and gender groups helped build profiles. He outlined a technical overview of content extraction under the subheadings of language packs, pre-processing, document parse, transcript and processing.

We were given an insight as to how Appen's tools such as their Text Attribution tool and Data Stream Profiling tool function, and comment of their current research into Sentiment Analysis.

Question time produced some interesting responses including the huge demands on hardware to cope with today's technical possibilities. On the English language, it is not the most used in volume but is the world's 2nd language and he sees it diverging (dialects) not converging in the future.

We all warmly supported Frank Barr-David's vote of appreciation to Chris for his presentation of such a fascinating subject.