

Professor Neil Weste

Citation for conferral of Doctor of Engineering (honoris causa) Ceremony 15, Tuesday 16 September 2014, 2:00pm

Chancellor, it gives me great pleasure to present to you Professor Neil Weste.

Professor Neil Weste has made a significant impact in Professional excellence in Engineering in outstanding achievement that has been recognised by peers within the profession.

Professor Neil Weste is an Australian inventor, a visionary technologist and a distinguished researcher in the field of engineering. He is noted for having designed the first commercial microelectronic circuits to implement the now ubiquitous Wi-Fi wireless networking standard and for authoring the textbook *Principles of CMOS VLSI Design* which is used throughout the world in electrical engineering courses. He has worked in many aspects of integrated-circuit design and was a co-founder of Radiata Communications which pioneered single chip implementations of the IEEE 802.11a Wireless Local Area Network standard.

Neil Weste (born 1951) grew up in the Riverland region of South Australia. He received a BSc in Physics in 1974, a BE (Elec) in 1976, and a Ph.D. in 1978, all from the University of Adelaide. His specific expertise is in integrated circuit design. Weste was first employed at Bell Labs, Holmdel, New Jersey, where he continued work on IC design, colour graphics displays and special purpose computer architectures. He wrote the MULGA IC design suite, which demonstrated for the first time integrated IC design tools that combined design rule free symbolic layout, LVS, DRC and detailed fast timing simulation. This used the EMU simulator that he co-wrote with Bryan Ackland. This was widely exploited as a basis for developing a range of interactive IC design tools. During this time he also co-designed a novel speech recognition chip and co-developed an innovative RAM architecture for graphics display use.

During a sabbatical at Duke University and University of North Carolina Chapel Hill, he initiated a CMOS design course that in turn was the basis for the first text on CMOS design. In its third edition, 25 years later, it remains a best seller as an undergraduate text and reference. The book *Principles of CMOS VLSI Design: A Systems Perspective* (ISBN 0201082225) has been the text of choice in over 600 institutions around the world and has been translated into many languages including Japanese and even Greek.

After returning to Bell Labs and being promoted to Department Head, Weste built a research department specializing in IC design and novel computer architecture. He then joined Symbolics in Cambridge, Massachusetts, to head a team designing a single chip LISP computer. This was successfully completed with the world's first completely integrated LISP microprocessor. Moreover, a new set of highly integrated IC tools, called NS tools, was developed under his leadership. He then co-founded an IC design company that used these tools to complete complex custom IC designs for many US companies (TLW Inc.).

In 1995, he returned to Australia as Professor of Microelectronic Systems at Macquarie University. Here he concentrated on wireless IC design for the IEEE 802.11a draft standard. In 1997, he co-founded the company Radiata Communications, which went on to design one of the first fully integrated chipsets for the 802.11a standard. This included a single CMOS chip 5 GHz transceiver, the descendent of which still is the best performing chip in the market today.

Weste personally led and designed all of the digital circuits for the RF chip and led the modem chip design and designed the high speed DACs for that chip. Cisco Systems acquired Radiata in 2001, in what has come to be the most successful private equity event in Australian business history. Weste continued to work for Cisco till 2004.

In 2005, Weste left Cisco Systems and founded NHEW R&D Pty Ltd, an angel investment and technology R&D company. He invested in a number of startups including Emotiv Systems, Avega Systems, g2microsystems and Widentifi. Widentifi is a company developing long-range RFID location tags and the other companies are searchable via Google.

During his commercial career in Australia, Weste continued as an adjunct at Macquarie University leading the supervision of PhD students and funding research in the area of silicon germanium (SiGe) mm-wave IC design. In addition, he frequently gave guest lectures at the University of Sydney and the University of New South Wales. On a yearly basis he supervised a number of students in their final year project from the University of

Sydney and the University of New South Wales having first taught them the basic of CMOS IC design on the CADENCE suite of tools. Weste personally intervened to obtain CADENCE tools for the University of Adelaide, the University of Sydney, the University of New South Wales and the University of Newcastle at US university rates.

His leadership has thus made a significant impact on IC education and the design community in Australia. Weste was invited to sit on an Australian government committee, in 2002, which oversaw grants to small technology companies. He became Chairman of that group and as a result joined the AusIndustry Innovation, Research and Development Board, where he oversaw a number of government innovation support programs and consulted in industry development policy. During this time he mentored many small Australian technology startups. During this time he gave many talks on the innovation process and the Radiata story.

He is a Fellow of the IEEE and a Fellow of the Australian Academy of Technological Sciences and Engineering. He was the initial co-inductee into the Macquarie University Innovation Hall of Fame and is an Inductee into the Pearcey Foundation Hall of Fame (an award recognizing lifetime contributions to the Australian IT industry).

In summary, at Bell Labs, he pioneered seminal developments in integrated circuit design tools, which became an industry standard, for development and commercialization of specialized computer ICs and systems-on-a-chip for wireless communication. He is highly regarded for the dissemination and promotion of IC design and technology in what has become a standard textbook on the topic.

Neil Weste has 14 U.S. patents to his name, including a number of methods for doing wireless communication in CMOS integrated circuits.

Neil Weste is an Adjunct Professor at the University of Adelaide and continues to foster industrial collaboration between his semi-conductor technology company NHEW Pty Ltd and the University of Adelaide. He was honoured with a Fellowship of the IEEE for his contributions to custom IC design and is a peer elected member of the IEEE Solid State Circuits Society.

Neil West has demonstrated outstanding and consistent leadership at the very frontier of telecommunications and microelectronics.

I am very pleased and proud to present to you Chancellor, for admission to the honorary degree of Doctor of Engineering (honoris causa) — Professor Neil Weste.