THE Bob Doran Museum OF COMPUTING

UNIVERSITY OF AUCKLAND
Waipapa Taumata Rau
NEW ZEALAND

SCIENCE
SCHOOL OF COMPUTER SCIENCE

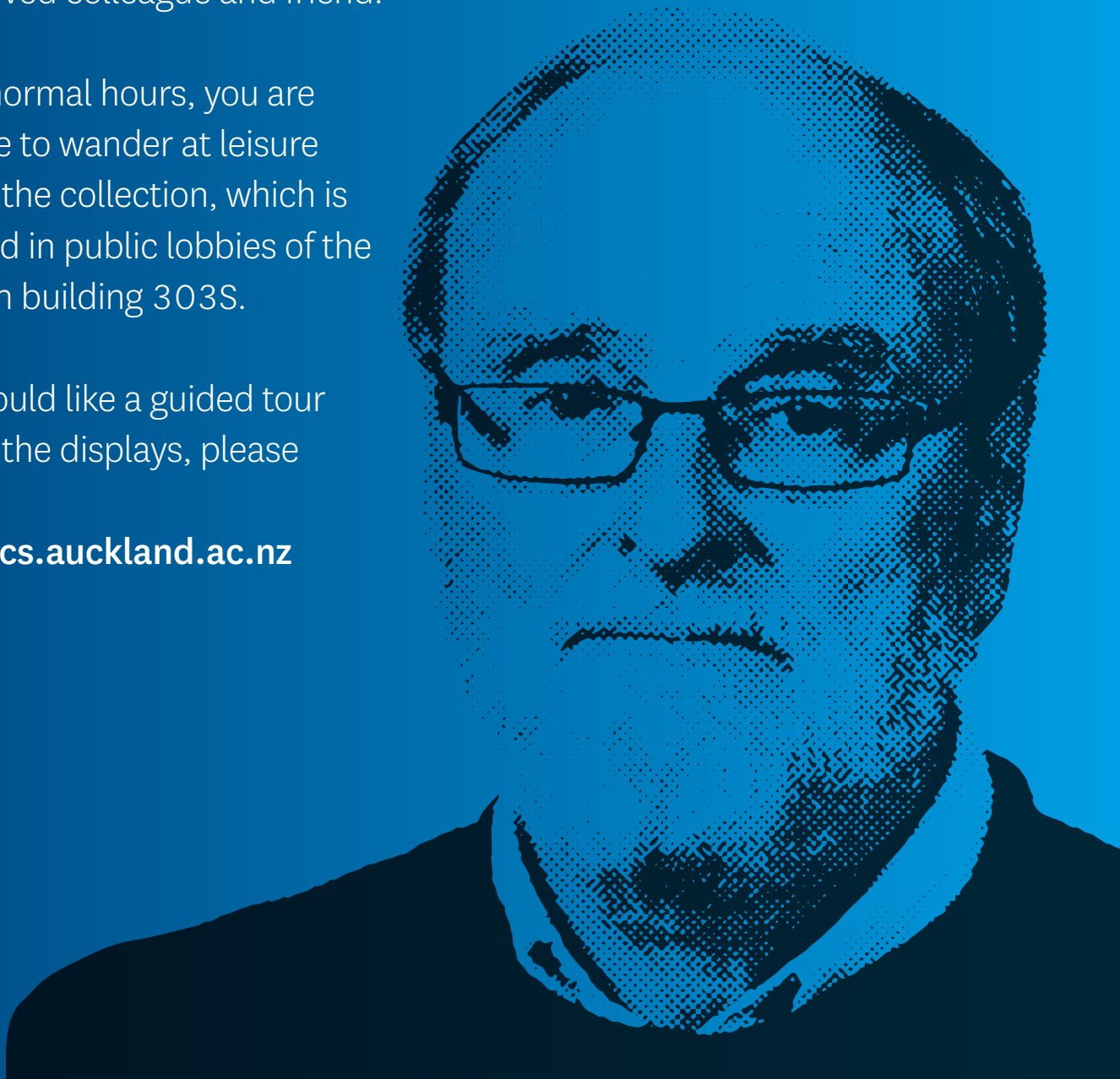
The School of Computer Science at the University of Auckland proudly hosts a collection of displays on the history of computing and computers. This collection has been named in honour of Professor Emeritus Bob Doran, who passed away in late 2018, and was instrumental in putting this collection together. We aim to commemorate his passion for the history of computing and remember him as a well-loved colleague and friend.

During normal hours, you are welcome to wander at leisure through the collection, which is displayed in public lobbies of the School in building 303S.

If you would like a guided tour through the displays, please contact
office@cs.auckland.ac.nz

Exploring the Collection

This brochure summarises the collection in the suggested tour order; from level 5 to the ground floor, exploring each level as you descend the stairs. It is recommended you take the elevator to level 5.



I/O and Magnetic Storage

Each floor has a loose theme to it, and level 5 is themed around computer data storage, and input and output. A particular feature is our display of computer magnetic storage devices, disks and tapes, featuring one of the first Winchester disks (the IBM 3350) and the largest (the IBM 3380). There is also the "head per track" disk of the Burroughs B6700, the university's mainframe in the early 1970s.

Logic and Switching

Another display here outlines the adaptation of Mathematical Logic to the design of computers. The display is enriched by some pieces of equipment salvaged from the Wellesley Street telephone exchange, as some early computers were made from telephone exchange components. This kind of computer is celebrated in the wooden sculpture on this floor by Auckland artist Leigh Christensen. "Bessie and the Bug" is inspired by an apocryphal story about a Harvard University computer called "Bessie" and the first computer bug, said to be a moth caught in the relays. If you look closely, you'll find the moth on the sculpture.

GUI and CAD

This floor also holds a display of special Computer Aided Design (CAD) equipment retained by our Mechanical Engineering Department. This display also shows the rise of Graphical User Interfaces (GUIs), for which 1984 was a pivotal year with the introduction of the Apple Macintosh.

Computer circuitry

This floor focuses on computer hardware – particularly mainframes and servers. We have displays of electronic circuitry from the days before the single chip computers. Throughout the history of computers, there has been a constant need to improve upon how the most critical components are packaged together into modules.

These packaged modules employed many ingenious tricks to decrease distances between components while still allowing them to be kept cool. The main memory of computers remained a difficulty, until integrated circuit RAMs were introduced in the 1970s. This display has a selection of examples of earlier magnetic core memory technology.

Mainframes and minis

The size of computers of the past is hard to credit nowadays, but to put things in perspective, we have a display here describing some of these machines, featuring an IBM 360/30 front panel. We also have parts of the School's mini computer servers from the 80s and 90s.

Programming and manuals

Despite its central importance, it is hard to design a display of a technology as nebulous as software! Instead, we have some selections from our collection of early books and manuals, including manuals of the first programming languages of the late 1950s, and the first texts used for teaching computer programming. There are also some manuals and books on some early and significant computers.

Computers made in Aotearoa, New Zealand

Finally, we're proud to display three of the four computers designed and built by New Zealand companies in the 80s. Two of these machines were designed by University of Auckland graduates; the Aamber Pegasus, and the Decade.

In the collection you'll find the "Poly", which was used by many local high schools, and the Australian Defence Department. You'll also find the MDL MX, which was used by Auckland Grammar. Aamber Pegasus is one of the computers designed and produced by University of Auckland graduates, and the specimen you see here is a recent addition to the museum.

Personal Computers

The main set of cabinets on this floor display a collection of early personal computers. We have one “first generation” machine here – the IMSAI. There are also many other early home computers, including the Apple II, Commodore PET, and the Radio Shack TRS-80.

Our department’s first personal computer laboratory used Zenith Z80s – staff had to assemble some of the Heathkit versions themselves. We have a good collection of early transportable machines - too heavy to really be called portable, but luggable.

You’ll also note the collection of coloured iMacs – these were first released in August 1998, and likely mark the first time that computers were marketed to consumers with personalisation.

Which colour is your favourite?

The Mainframe Sculpture

This dynamic work by Leigh Christensen was acquired by the School in 2010. It was inspired by logic circuits and uses ball bearings to represent bits – large ball bearings are 1, small ball bearings are 0.

The sculpture is entirely accurate and can add small numbers together to produce a sum.

Mechanical and electro-mechanical calculators

In the display cabinets we have a selection of early pre-computer calculators, analogue aids such as slide rules, and mechanical and electro-mechanical calculators. We have also some of the first completely electronic calculators and early personal digital assistants including the Apple Newton, and early notebook PCs.

Totalisators

Totalisators were used to total and display bets on horses at racecourses. The world's first automatic totalisator began operating here in Auckland at Ellerslie in 1913. Here, we have on display some of the totalising and display machinery from Palmerston North and Melbourne.

The Babbage Connection

Charles Babbage designed the first automatic calculating machines in the early 1800s. Some of his descendants immigrated to Aotearoa and brought with them mementos of their famous grandfather. For a while a piece of the Difference engine resided in Auckland – it is now on display in the Sydney Power-House museum.

The central feature of our display here is another sculpture by Leigh Christensen, which was inspired by the cogs and wheels of the Difference engine.

The University's first computer: The IBM 1620

The IBM 1620 was a popular computer at Universities worldwide and performed great service for us from 1963 until it was replaced in 1968.

As there was just the one computer for the whole university, it operated 24 hours per day. Graduate student users would have to book time to run their programs in the dead hours of the morning from 2am to 6am.

The 1620 was a relatively inexpensive computer, but still cost over a million dollars in today's money. It was also very slow – a modern PC is a million times more powerful!

The Punched Card Era

The IBM 1620 was designed to use punched cards to store information. Most computers in the 1950s and 1960s used punched cards for their input and output. This is because, unlike the 1620, which had calculation as its primary purpose, most computers performed accounting tasks. These accounting tasks had been using punched card data processing long before computers came along, so computers adopted the technology until something better came along. Here we have a small display of punched cards and accounting machines, featuring the IBM card sorter.

Computer History Timeline

The timeline was prepared for the opening of the building in September 2003 and redesigned in 2013 to fit a new space on the north of the entrance plaza. We have given prominence to events of particular interest to New Zealand, Auckland, and the University. Progress in computing has been driven by technology improvements – these are illustrated by the events representing major increases in the capacity of computer memory chips and the speed of processors.

Para Matchett Bas Relief

This was commissioned for the School of Computer Science in 1984 and reinstalled here in 2003. Para Matchett is a sculptor from Gisborne. Being on such prominent view, the work has become an icon of the School of Computer Science. The symbols at the top of the bas-relief are those of Te Kooti, however, by chance, the symbols are meaningful to computing. Some key examples are the symbols +, - and *, which can be seen at the top of the bas-relief and are used in computer code.

The Apple Macintosh

We took delivery of our first Apple Macintosh computer in 1984 and it soon became the computer we used for teaching programming with Pascal. The Mac remained our main computer until the mid-90s. Over the years the Apple Macintosh has been a leader in both human-computer interface technology and artistic product design. Here we have a selection of Macs ranging from the pre-mac 1983 Lisa, right up to the iMacs of only yesterday.

Find out more at https://museum.cs.auckland.ac.nz

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