Andrew Macdonald

EMBEDDED SOFTWARE DEVELOPER

+ CONTACT

Address	32 Bank Road, Graceville, QLD 4075
Mobile	☎ +61 468 667 553 ☎ +61 7 3278 5836
Email	✉ andrewmacdonald638@gmail.com
Profile	www.linkedin.com/in/AndrewMacdonald638
WWW	andrewmacdonaldconsulting.com
ABN	72179490635
Nationality	Australian
Date of birth	29 October, 1956
Gender	Male

+ PROFILE

I'm an experienced C++ Software Engineer, striving to deliver the very best software I can. I believe in listening to the customer, respecting my workmates & colleagues, and being a team player. I enjoy a technical challenge, and I'm always learning new skills.

+ EXPERIENCE

AGJUNCTION
Feb 2013 - Apr 2019

Software Engineer

Develop advanced auto-steering solutions, for use in Precision Agriculture.

Write embedded, near real-time terminal applications, meeting OEM Customer Requirements, including code-correctness, reliability and safety on the farm. I worked on Graphical User Interface design for several ruggedized terminals & tablets. Featuring Qt & QML GUIs, as well as an OpenGL MapEngine (i.e 'Moving Map'). Having a world-wide market, most GUIs support 20+ languages & locales, including Mandarin, Japanese, Latin America & Europe.

Skills:
Requirements analysis,
Software architecture & design,
GNSS, RTK GPS, CANbus,
GUI / HMI design, moving-map,
C++11, C++14, C++17, QML/Javascript, Python
Unit testing, Squish
Embedded O/S, Tiny Core, Yocto,
Over-the-air deployment,
Feature based licensing

HEMISPHERE
Jan 2008 - Feb 2013

Software Engineer

Worked as software architect & coder for *EDriveX* steering-controller, along with the accompanying *Outback STX* and *MAX* terminals. Also worked with Claas (a tractor OEM), to continuously improve OEM versions of the firmware.

Worked with Claas to build a GPS terminal, customized for Schmidt snow-blower tractors.

BEELINE
Oct 2005 – Jan 2008

Software Engineer

Beeline Technologies invented the world's first GPS+Inertial Guidance system for agriculture, in Toowoomba in 1997. I worked on Beeline's *Arro* and *Solstice* terminals, as well as *B4, B6* & *Celestia* auto-steering platforms. Helped to integrate auto-steering into OEM vehicles, manufactured by AGCO, CAT and Fendt. Also, field-testing of auto-steer tractors, at farms around Moree & local.

R&D project: experimental Optical Flow sensor, using camera & GPU hardware.
R&D project: Build an FPGA serial-interface, talking to *Sick* 2D LIDAR sensor.

	R&D project: Beeline Autonomous Agricultural Vehicle; an experimental robot, featuring an embedded spatial database, and obstacle-avoidance algorithms.
Brisbane City Council Oct 2003 – Oct 2005	Technical lead, *eBimap* online GIS web-portal. Database tuning on *Spatial Data Store* data-warehouse. Design and build *Solicitor's Requisition* spatial report system. *ESRI ArcGIS* database migration.
ESpatial Solutions Sep 2001– Sep 2003 Dublin & Saudi Arabia	Design and build *iSmart Explorer,* a fast, lightweight *Oracle* + GML viewer. GIS Data capture, for West Coast Route Modernisation railway project. Project management & Analysis, on *SCECO* electricity distribution project.
Foxboro / Invensys Dec 1998 - Aug 2001 Australia, UK & USA	Requirements analysis, *West Coast Route Modernisation* railway project. Systems Integration, linking GIS, SCADA and Electical DMS systems. Design and build *WCRM* map-projection transform software.
QLD Department of Natural Resources Dec 1997 – Dec 1998	Technical lead on *Government Land Register* (GLR) project. Functional Requirements analysis. Logical & physical database design (*Ingres* DB).
Brisbane City Council Dec 1989 – Dec 1997	Architect & build *Bimap Access System* (BAS), a fast, online GIS. Design & build *WebBAS;* a web-portal, and successor to *BAS.* Implement *Vegetation Protection Ordnance* (VPO), a GIS report-generator.
Queensland TAB Aug 1987 – Nov 1989	Design & code *Cash Office Information System.* Technologies: Ada language & custom transactional database & middleware.
Shannon Robertson Feb 1986 – Jul 1987	Develop & maintain *Habitat* real-estate management suite. Customer support hotline, and customer training.
MapGraphics Feb 1985 – Feb 1986	Seismic survey adjustment. Technology: FORTRAN & CAD drafting.
Australian Bureau of Air Safety Investigation Apr 1982 – Feb 1985	Design and build *Boeing 747* cockpit flight simulator, for real-time playback and post-crash analysis of 'black-box' flight recorder data. Technology: Evans and Sutherland PS300 Vector Graphics workstation
Dept of National Mapping Jun 1980 – Apr 1982	Design and build *1981 Census Boundary* capture system. Supervise data-capture drafting team. VAX-11 System administrator.
Department of Defence Jan 1979 – Jun 1980	Maintain & develop *Defence Archive System.*

+ EDUCATION

1976 – 1978	**BACHELOR of SCIENCE DEGREE (Computer Science)** Australian National University Canberra, ACT

+ SOFTWARE PATENTS

US8768558B2	**Optical tracking vehicle control system and method**

+ SKILLS

Operating systems	**UNIX, Linux, Yocto**
Software development	**C++14, Qt, QML, Boost, GPS, OpenGL, GTest, Yocto, CANBus, KML**
Tools	**Git, Subversion, Doorstop, Qtopia, Confluence, Jira, xdot**
Methodology	**Agile**

+ HOBBIES & INTERESTS

	Photography 3D printing Raspberry Pi

MTB Cycling
4WD touring
TIG welding
Macdonald family history