

Maksim Lin

Freelance Software Developer, Director of Manichord Pty Ltd

www.manichord.com

maks@manichord.com

Summary

Currently as an independent developer and consultant, I work across the whole Android stack: from systems development in creating customised versions of the Android operating system through to user apps published on Google Play.

I'm a passionate contributor, user and supporter of open source software (<https://github.com/maks>).

I am also a regular speaker at technical conferences and local developer group meetups (<http://manichord.com/videos.html>) and a Co-Organiser of the Melbourne Android GDG.

From time to time I work on projects outside of Android in the areas of Chrome apps and embedded systems development.

Prior to Manichord my work covered everything from being on large projects at multinational Telcos delivering large web applications, through to small teams developing and deploying touch-screens and digital signage at a major public Art Gallery. On those projects I worked hands-on across the full range of software development cycle primarily as developer, but also as a tester and systems administrator.

I build software that solves real problems and that people enjoy using.

Freelance Software Developer & Director at Manichord Pty Ltd

April 2011 - Present

Specialising in Android Application, AOSP System development and embedded systems development.

Working closely with a wide range of clients, I have built custom solutions using Embedded Android (AOSP) system development along with creating Android Apps deployed via Google Play and within internal systems.

Client: [Supp](#)

Supp is a Co-Operative for Hirers and Workers in the hospitality industry.

Working with the team at Itty Bitty Apps, I worked on building the majority of the Android Supp app, starting from some initial work that had been done on the first screen of the app through to having it ready for final testing and client sign-off to publish.

Key technical aspects of the app included use of a modern MVVM architecture making use of:

- Kotlin
- RxJava2
- Data Binding Library
- Arch Components LiveData
- Retrofit2
- Moshi

As well the above, the app includes integration with Stripe APIs for user payments.

Client: [Art Processors](#)

A custom Android system built to meet the need for a small portable device for use as a visitor interactive audio tour in the Australian War Memorial's new permanent First World War exhibition, *Australia in the Great War*.

I worked with Art Processors to create a customised build of the Android operating system for the Nexus 5. This included:

- ❖ complete lockdown of the standard system UI elements
- ❖ providing a compatibility layer for application access to camera features available in newer releases of AOSP
- ❖ custom boot logo, removing standard applications,
- ❖ disabling standard system UI alerts
- ❖ custom presets for audio, wifi
- ❖ wifi presets via NFC.

(<https://www.awm.gov.au/media/releases/first-world-war-galleries-officially-opened-australian-war-memorial>)

(<https://twitter.com/AWMemorial/status/569713260137574400>)

Client: [BlocksGlobal](#) - Opesign

I had responsibility for developing all Android-based parts of their Digital Signage Solution *Opesign*, which is now in use with a number of customers in Australia and worldwide. I wrote a suite of Android Apps to implement the Opesign functionality, as well as building customised versions of the Android OS for supported devices. In the later stages of the project I have been responsible for coordinating the work of both a new developer, contractors and front-end web developers.

Android (AOSP) System: I created Android system builds for both Intel and ARM devices to support a web-based, Digital Signage solution. In order to meet the requirements of the Opesign product, the Android OS was customised for embedded use on both ARM and x86 devices from the hardware OEM partner. This included:

- ❖ modifying existing bootloaders (on both x86 and ARM)
- ❖ modifying Linux kernels to support new hardware (touchscreens, 3G modems)
- ❖ support for custom USB based sensors and output devices
- ❖ adding OS support for ethernet and authenticated proxies, OS lock-down, custom touchscreen hardware and device bootup

Android Applications: I built out a suite of applications for providing a web-based, digital signage solution. These applications include functionality to:

- ❖ register with and display content from an existing CMS (REST Api),
- ❖ playback local content that is kept updated on the devices via Git
- ❖ a Javascript custom API available to displayed content
- ❖ interface with external sensors/devices, report usage and diagnostics to a central control server
- ❖ custom UI for users to do network configuration
- ❖ a store and forward service for HTTP requests
- ❖ provide OTA updating of all apps from the control server.

Other responsibilities included liaising with external hardware vendors, providing advice on new hardware and specifications to company directors, mentoring a new developer, co-ordinating development with the server development team and assisting front-end web developers.

Client: [Observant](#)

Bringing my previous experience in working with embedded Android devices, I worked with the development team at Observant to create a proof of concept build for a upcoming product. I built a system capable of doing transactions over HTTPS running on a embedded Arm Cortex-M4 microcontroller with very limited memory (32MB) and storage (512kB Flash)

limits. This required modifying and porting a full RTOS and networking stack written in C to run on the microcontroller development board including:

- ❖ FreeRTOS
- ❖ lwIP
- ❖ CyaSSL
- ❖ libfetch

Client: Swatchmate (now [Palette.com](#))

To support the new Cube (precise colour scanning) device, Swatchmate need an Android companion application. Working closely with Swatchmate's UI designer and firmware developer, I wrote the swatchmate app to provide users with:

- ❖ interactive onboarding UI process to familiarise user with the Cubes features
- ❖ access to the Cube via a custom Bluetooth LE protocol
- ❖ matching of colours to a number of manufacturers paint databases
- ❖ display of scanned colours with conversion between different colour spaces
- ❖ temperature based calibration of the Cube for precise colour scanning
- ❖ display of the Cubes status (battery/light levels)

Also required the creation of an asynchronous BLE queue and dispatch subsystem to manage BLE communication with the Cube device.

The App has meet with a good user response, currently with a rating of 4.4 on the Playstore

<https://play.google.com/store/apps/details?id=com.swatchmate.cube>

Client: [Vodafone Foundation](#) (B2Cloud)

The Dreamlab app allows people to contribute compute resources to the Garvan Institute for Cancer research with the app running automatically in the background while users charge theirs phones at night.

Working with the design and test team at B2Cloud, I built the Dreamlab Android App and maintained it through subsequent post-launch updates.

As the app is unusual in its design constraints to operate without user input over extended periods of time, I drew on my experience in working on digital signage systems with similar autonomy requirements to build a robust application that to date has been downloaded over 60,000 times and has a user rating of 4.7 stars (by 2,846 users) on Google Play.

<https://play.google.com/store/apps/details?id=au.com.vodafone.dreamlabapp&hl=en>

Client: [Waterwheel Creative](#)

Working closely with the great team at Waterwheel Creative I built both the Dubai Careers Android app as well as a stateless backend server written in Java using the Spark

Framework to provide a JSON/REST API used by both Android and iOS apps to get and send data to an Oracle Taleo Enterprise Cloud Service.

<https://play.google.com/store/apps/details?id=ae.gov.dsg.tjobs&hl=en>

Client: [Salsa Digital](#)

To support a proof-of-concept BLE (iBeacon) based location tracking iOS app, I built prototype embedded android systems using both development boards and Nexus tablet devices, that provided a high rate of BLE scanning data streamed to a AWS backend system using Amazon Kinesis and EC2.

Client: [National Gallery of Victoria](#)

Web projects including a mobile website and system integration with existing business systems and the Squiz Matrix CMS.

Multimedia Systems Developer / Administrator - National Gallery of Victoria

November 2005 - March 2011

Working in the multimedia department at the NGV, responsible for all application development and systems administration of the public webserver and internal application servers which controlled public on-site digital signage and touch-screens.

Key accomplishment was over-seeing a complex implementation of a new CMS, including migration of existing applications and content, integration with legacy web applications and internal business systems and developing a REST API for use by third party applications such as the NGV's iPhone App.

I undertook a program of replacing existing an existing monolithic J2EE application with applications written in server-side Javascript. This approach meet the need of rapidly providing applications suited to the current needs of the organisation. It also allowed for future enhancements to be possible by other staff with only Javascript/Actionscript skill-sets.

Additional responsibilities:

- ❖ Conducting evaluations of new OTS products for deployment within the multimedia department
- ❖ deployment of several of new systems: group-based web publishing system integrated with Active Directory,
- ❖ customisation of a system to provide a fine-grained publishing access-control mentoring junior developers and web designers
- ❖ assigning and reviewing work of external contractors

Senior Java Programmer Analyst - National Australia Bank

September 2005 - November 2005

Initially employed to work on deploying and customising a derivatives trading application. Due to cancellation of the project, worked on proof of concept web services project for customer loan applications.

Senior Software Engineer - Nokia (Helsinki, Finland)

2004 - 2005

As a senior J2EE developer I was part of an ongoing project developing Nokia's primary business critical B2B website with approximately 40,000 users. My role involved all aspects of the project cycle:

- ❖ application development of several new web applications that were successfully put into daily worldwide use within the company, dealing with Customer Care services within Nokia
- ❖ creating technical designs for upcoming project development work
- ❖ co-ordinating between the core development team, external consultants, testers and business group staff
- ❖ assisting with the testing and deployment of applications into the production environment
- ❖ providing 3rd level support and maintenance for the applications once they were deployed into production use.

In addition to my other duties, I took on an informal team-lead and mentor role within my development team and participated in planning activities in order to be able to provide technical advice to the project manager and business oriented staff.

QA/Test Engineer - Versata

October 2002 - December 2003

Developed an automated performance testing application to replace existing in-house tools. The tool was successfully used to identify and resolve a number of performance issues. As a QA and Test engineer I was responsible for the QA process for the Versata J2EE Workflow product. This included writing and reviewing new test plans and designing performance test plans. I was also responsible for reviewing and verifying code enhancements and bug-fixes made to the product.

Software Developer / Consultant - ZettaWorks

February 2002 - October 2002

Enterprise Application Integration project at Telstra using Tibco products to integrate a Siebel based call-centre application with a number of legacy high-volume applications, deployed on a Solaris platform. This application was core-business application for Telstra's call-centres, that was successfully deployed into production use with 1000+ user base and very high daily transaction volumes.

Software Engineer - Managesoft

July 2001 - February 2002

Design and development of a web-based reporting system for a enterprise software-management application using Microsoft C#, .NET and IIS. Enhancement of a cross-platform C++ Internet protocols library as a key component of a large enterprise-level application.

Software Engineer - Ericsson Australia (Advanced Services Application Centre)

1999 - 2001

Worked in small teams to develop applications:

- ❖ a web-interface to a telecommunications IN (Intelligent Network) service. Also installation, testing and acceptance testing at the customer site
- ❖ Java servlet code to integrate a web-based customer service platform with an existing mobiletelecommunications application, communicating using XML/XSLT
- ❖ a Java CORBA server application (using OrbixWeb) to interface between an existing C++ CORBA application and network signalling interface
- ❖ Ported a VOIP application from C++ on Windows to Java on a Linux platform, developed successfully to a tight schedule for a flagship prototype product to be displayed at the CEBIT trade show
- ❖ Design and development of C utility for report and statistics generation for use with IN products, responsible for producing reports of errors and operational statistics generated by network applications.
- ❖ Maintenance and enhancement of an existing C++ CORBA application providing an IN service and a web-interface to the service for the carriers customers

Public Speaking

I've had the opportunity to do a number of presentations at both large technical conferences and local user group meetings.

<https://manichord.com/talks/>

- ❖ *"Oh the things you could do if you had a Chromebook too"*, Presented at GDG Melbourne, 27th Apr 2016 (formerly Android Australia User Group).
- ❖ *The Secret Life of Services*, Presented at Yow Connected 2015.
- ❖ *Espruino: JS go under limbo stick*, Presented at OpenHardware Miniconf, Linux Conference Australia 2015
- ❖ *Git in the Browser: Then and Now*, Lightning Talk presented 12th March 2014 at MelbJS User Group.
- ❖ *Customising Android: Looking Inside the Droids Belly* at Yow! Connected, Melbourne 2014
- ❖ *Building an Appliance on Android* Presented at MobileFOSS, Linux Conference Australia 2013
- ❖ *Project Grimlock* Presented at MobileFOSS, Linux Conference Australia 2013
- ❖ *Android and Bitmap Debugging* Presented at Android Australia Users Group (Melbourne, 2011)
- ❖ *Redis: Quick and Simple* Presented at Linux Conference Australia 2011 - Database Storage Miniconf.

Community

Maintainer of MGit: Android git client (<https://github.com/maks/MGit>)

Author of SketchNotes: Android notepad app (<https://github.com/maks/Sketch-Notes>)

Skills & Expertise

- ❖ Java
- ❖ Android
- ❖ Android platform development / AOSP development
- ❖ JavaScript / HTML5
- ❖ Linux server administration
- ❖ NodeJS
- ❖ XML
- ❖ SQL
- ❖ Redis

- ❖ jQuery
- ❖ Agile Methodologies

Education

BEng, Electrical Engineering, Swinburne University of Technology