

# Xin WEI

Greater Toronto Area, Ontario, Canada

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## SUMMARY OF QUALIFICATIONS

- 15 years of experience in software design and development in consumer electronics and automotive infotainment systems
- Extensive development experience in multiple OS systems (Linux, Windows, Android, and RTOS) and multiple platforms (x86, ARM, PowerPC, microcontroller, and DSP)
- Excellent programming skills in Java and C/C++, and familiar with Python, Unix shell script, assembly language, SQL, and design patterns
- Solid knowledge in embedded system design and debugging, Android framework, TCP/IP protocols, Android Auto, and Apple CarPlay
- Highly self-motivated, hardworking, and good teamwork spirit

## PROFESSIONAL EXPERIENCE

### Senior Software Engineer

Oct 2015 – present

General Motors Canada, Markham, ON

Projects: Android-based vehicle infotainment system

Responsible for software development in Android framework for phone projection, connectivity, and network management features, following Agile/Scrum process (Git, Gerrit).

Programming languages: Java, C++.

- Fast prototyped Wireless Android Auto (WAA) feature before 3<sup>rd</sup> party dependency was ready. Saved 3 weeks' time in project schedule.
- Designed and implemented Wireless Projection Service in Android framework to support WAA feature: sharing WiFi hotspot info to phone via Bluetooth RFCOMM connection, and starting Android Auto session in WiFi connection following Google spec.
- Fast learned Apple spec and Bonjour service, and successfully implemented Apple Wireless CarPlay (WCP) prototype using C++ and JNI before 3<sup>rd</sup> party library was ready. Saved 2 weeks' time in project schedule.
- Extended Wireless Projection Service to implement WCP feature: Establishing iAP2 channel over Bluetooth and sharing WiFi hotspot info to iPhone, discovering and resolving Bonjour services, and starting CarPlay session in WiFi using Cinemo's library.
- Refactored Device Management Service: managing all connected devices in Android including Bluetooth devices and phone projections. Implemented using Message Queue, AIDL, and State Machine. Significantly improved stability and maintainability.
- Worked with software architect to design vehicle network system. Implemented Net Filter Service to manage network firewall rules and data traffic priorities. And maintained Android connectivity system (Connectivity Service, Network Management Service, netd).

**Software Engineer**

Feb 2015 – Oct 2015

Qualcomm Inc., Markham, ON

Projects: Android platform development of automotive infotainment system

Responsible for software development and maintenance of Android display system based on Qualcomm SoC. Programming languages: C, Java.

- Actively involved in Linux open source development, and contributed source code to Linux kernel display driver to support 3 displays in Android.
- Fast learned Android framework in a very tight project schedule, and successfully implemented new feature of multiple apps co-existing on multiple displays, by modifying Android core services: Activity Manager Service and Windows Manager Service.

**Software Engineer**

Jan 2013 – Feb 2015

Thales Canada, Transportation Solutions, Toronto, ON

Projects: CBTC (Communications-Based Train Control) system

Developing train control systems for new subway lines all over the world. Responsible for developing wayside sub-system which is the mission-critical part of the whole system.

Programming languages: C, Python.

- Designed system using redundant replicas to achieve high availability and high reliability.
- Developed C programs to process inputs from all replicas and control wayside field elements. Fixed low-level program issues by directly programming hardware registers.
- Captured CAN bus messages using CANalyzer, developed Python scripts to decode CAN bus messages, and performed data analysis.

**Senior Software Engineer**

May 2007 – Dec 2012

Continental Automotive Holding Co. Ltd., Shanghai, China

Projects: Bluetooth handsfree, Connectivity and Infotainment system, Telematics system

As a technical team lead, responsible for software architecture and design document maintenance, new feature design and development in RTXC (a Real-Time OS) and Linux system. Programming languages: C, C++.

- Experienced full software development life cycle (V-model) following CMMI process and MISRA coding standard, and managed source code in ClearCase / ClearQuest.
- Designed and implemented TCP/IP data communication sub-system over Bluetooth DUN (Dial-Up Networking), and based on that implemented location-based services (News, Weather, Traffic Info, etc.). The innovative feature integrated data connectivity into Bluetooth Handsfree products for the first time on the market.
- Designed and implemented an application-level protocol based on HTTP for secure and efficient data communication between in-vehicle device and remote server.
- Designed and implemented TTS (Text-To-Speech) feature by using iFlytek TTS engine with extremely low memory footprint, and implemented a prototype of cloud speech recognition feature based on iFlytek embedded cloud speech recognition engine.

**Software Engineer**

Jul 2005 – Apr 2007

Leadtek Research Inc., Shanghai, China

Projects: IP video phone, STB (Set-Top-Box), and IP surveillance products

Responsible for developing embedded Linux system in multimedia communication products based on TI DSP + Infineon MIPS CPU. Programming languages: C, C++.

- Developed H.264 audio/video streaming apps based on RTP/RTCP/RTSP protocols.
- Configured QT/E environment in Linux, and developed QT/E applications.
- Built embedded Linux system: maintaining bootloader U-boot, building Linux kernel, and making root file system.

**PhD Candidate**

Apr 2002 – Jun 2005

Shanghai Jiao Tong University, Shanghai, China

Project: Research on high-performance drive and control technologies of induction motors

Responsible for control algorithm research and innovation, experiment bench setup, and algorithm implementation. Programming languages: assembly language, C++.

- Performed modelling and simulation research on various motor drive control systems using Matlab/Simulink, and published 8 academic papers.
- Presented new motor control schemes and improved motor control performance by introducing intelligent control methods such as Fuzzy control, Neutral Network control.
- Programmed TI DSP controller using DSP assembly language, implemented motor control algorithms and serial port communication module.
- Developed PC software using Visual C++ to control DSP board through RS-232 port, set parameters, receive data from DSP, and display the data graphically.

**EDUCATION**

**PhD** degree in Automation & Instrumentation Engineering

Apr 2002 – Jun 2005

Shanghai Jiao Tong University, China

**M.S.** degree in Mechatronic Engineering

Sep 1999 – Mar 2002

Nanjing University of Science and Technology, China

**B.S.** degree in Mechatronic Engineering

Sep 1995 – Jul 1999

Nanjing University of Science and Technology, China