

Martijn Thé

Software Engineer

Martijn Anton Hou Gwan Thé

05 SEP 1982 – Nationality: Dutch

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Skills

- Development of firmware for ARM Cortex-M and Intel x86 based embedded systems using C and LLVM/Clang and GCC toolchains.
- Designing and implementing APIs for JavaScript & TypeScript application developers on top of the JerryScript engine.
- Profound understanding of the ECMAScript (JavaScript) language specifications due to work on the JerryScript engine.
- Using the emscripten compiler to transpile embedded C code bases to JavaScript-only environments, to create embedded device simulators that run in web browsers and Node.js.
- Very deep knowledge on the Bluetooth 4.2 / Low Energy protocol stack (LL, L2CAP, HCI, GAP, (G)ATT and SMP)
- Debugging issues between embedded system connected to iOS and Android phones over Bluetooth LE, using Frontline airtracing tools, HCI sniffers and custom debugging tools.
- Debugging using GDB and scripting the debugger using the Python-GDB interface, to automate triaging and debugging embedded systems (both core dumps as well as live systems over JTAG/SWD).
- Experience with building QEMU-based embedded device emulators and enabling automated integration tests on emulated devices.
- Familiar with iOS' CoreBluetooth and Android's BLE APIs.
- Able to build prototype (Bluetooth) apps for iOS (Obj-C) and Android (Java).
- Test driven development using unit tests and integration tests.
- Professional experience mainly with these ICs:
 - ◆ STM32 family (microcontrollers)
 - ◆ Intel Quark family (x86 microcontrollers)
 - ◆ Dialog DA1468x (BLE SoC)
 - ◆ TI CC2564x (BT controller)
- Scripting using Python and JavaScript/Node.js, mainly for to create internal tools to support the development process.
- Very comfortable working with non-existent, vague or changing requirements.
- Very comfortable working with non-engineering people and in multidisciplinary teams.
- I've been an in interaction / graphical designer in a previous life. As a software engineer, I also bring a sense for user experience

to the table.

Experience

Intel (Vaunt smart glasses) / Firmware / App Runtime Engineer

MAR 2017 - NOW, WORKING REMOTE FOR HQ IN SANTA CLARA, CA

- Lead engineer on the app runtime inside the [Vaunt smart glasses](#). The runtime is written in embedded C and built on top of the [JerryScript engine](#) (an open-source ECMAScript/JavaScript engine for small embedded systems).
- Designed and built a large set of (externally facing) TypeScript APIs that are implemented inside the device runtime using C. JerryScript's C API was used extensively to bridge from the JS inside the runtime to the native C code that implemented the actual functionality of the APIs.
- Built an Electron-based desktop simulator application to speed up development of apps for the Vaunt glasses. Used the Emscripten compiler to transpile the C source code of the device application runtime into JavaScript that could be run inside the Electron framework.
- Designed and built SDK tooling to produce the apps that can be run in the runtime on the glasses as well as in the desktop simulator, using the TypeScript language, Webpack, Jest and other popular JS tools.
- Maintained Vaunt QEMU device emulator. The emulator is mainly used as an internal development tool for firmware engineers.

Fitbit / Principle Software Engineer

DEC 2016 - MAR 2017, WORKING REMOTE FOR HQ IN SAN FRANCISCO, CA

- Led the initial engineering effort behind the application runtime and [JavaScript SDK for the Fitbit Ionic smartwatch](#), helping convince the management to pursue a JavaScript based SDK instead of a C based SDK. The runtime is based on [JerryScript](#) (JavaScript runtime for small embedded systems). It has been productized after I left and released in the fall of 2017.
- Implemented various JavaScript APIs on top of the JerryScript and on top of an existing SVG/CSS C library.

Pebble Technology Corp. / Software Engineer / Bluetooth Lead

MAY 2012 - PRESENT, PALO ALTO ('12 - '15) + WORKING REMOTE ('15 - '16)

- Most recently worked on [Pebble's JavaScript SDK](#), which is based on [JerryScript](#) (JavaScript engine for small embedded systems).
- Implemented various JavaScript APIs on top of the JerryScript runtime, for example [postMessage\(\)](#) and [memorypressure](#) APIs.
- Technical lead for Bluetooth connectivity for all Pebble products.
- Led the evaluation, selection and integration of a new Bluetooth chip and stack for Pebble 2, Pebble Time 2 and future products. Managed a team of 4 to accomplish this project.
- Triaging and resolving connectivity issues with Pebble products, by gathering statistical data of the Bluetooth performance of products in the field.
- Analyzing and reporting gathered analytics data using SQL/Presto/Hive database queries, pandas and Jupyter/PyNotebook.
- Hands-on embedded firmware software engineering: writing C code, debugging issues with GDB, etc.

- Wrote a large portion of the v1.0 Pebble App SDK (C language), in particular the UI widgets. Much of this code is still used today.
- Singly wrote the first releases of the Pebble iOS application.

Noodlewerk BV / Co-Founder / Co-Owner

APRIL 2010 - MAY 2012, THE NETHERLANDS

- Built this boutique, 6-person iOS app design and development company.
- Helped design and implement some of The Netherlands most popular mobile apps, like Parkmobile and Uitzending Gemist ("the Hulu of the Netherlands").
- Gained experience with iOS, Obj-C, HTTP/REST, security and cryptography principles.
- Designed UI/UX for various mobile and tablet apps.
- Sold the company in 2012.

1uptoys BV / Concept Designer

JULY 2008 - SEP 2009, THE NETHERLANDS

- Prototyped gaming peripheral hardware concepts using Arduino and breadboards.
- Prototyped accompanying game concepts using Flash, C++ and OpenGL.
- Designing and running play testing and user observations experiments to validate concepts.

Education

Delft University of Technology / MSc. Design for Interaction

2001 - 2008, DELFT, THE NETHERLANDS

University of Art and Design Helsinki / Media Lab

2005 - 2006, HELSINKI, FINLAND

Delft University of Technology / BSc. Industrial Design Engineering

2001 - 2006, DELFT, THE NETHERLANDS