# LEE Lup Yuen

## Techie and Educator in IoT

Singapore SG Born in 1969

in lupyuen ♥ mistertechblog Download PDF JSON



Hands-on IoT advisor and educator. Passionate about helping everyone create IoT products that make a difference to the man and woman on the street. 'Top Writer In Internet of Things' at medium.com

Cloud Computing

aws | google cloud | azure | s3 |

api gateway | cloud functions |

appengine | tensorflow | bigquery |

sagemaker | rds | dynamodb | lambda |

Master

node.js | go

#### SKILLS

### Internet of Things (IoT)

Master

nb-iot | sigfox | lora | aws iot |

google cloud iot | azure iot | thethings.io |

ubidots | embedded rust | embedded c |

ablacte | citibodaca ract | citibodaca c

arduino | stm32 | blue pill | esp8266 |

nrf24l01

## Mobile Application

## Development

Master

ios | android | swift | react native | xcode |

responsive mobile web | bootstrap

#### **WORK EXPERIENCE**

Adjunct Lecturer at Temasek Polytechnic April 2015- February 2019

Responsible for teaching and mentoring the next generation of professionals in IoT technologies. He taught the following courses:

■ IoT Application Development: He prepared and presented lessons and labs for training working adults with IoT programming skills, based on AWS IoT, Sigfox, Ubidots and Arduino. He created the training platform with various AWS services: AWS IoT, Lambda, API Gateway, S3, DynamoDB, SNS,

Elasticsearch, Kibana. His students included IT professionals from Agility, IBM, SAP, Ericsson, Canon and ITE.

- IoT Project: He supervised the students in creating innovative IoT products (based on AWS IoT and Sigfox) that solve real-world problems like dementia patient tracking, elderly home monitoring, food safety, campus security, AED management, realtime asset tracking.
- Operating Systems: He conducted tutorials and labs for the Operating Systems core subject, which is a graduation requirement for all fulltime students. He covered a broad range of operating systems including Android, iOS, Linux and Windows.

Chief Technology Officer at UnaBiz August 2016- April 2018

As former CTO of UnaBiz, he was responsible for creating new tools and systems to help people get onboard with Sigfox the quickest way possible.

- UnaLocation Enhanced Sigfox Geolocation: Estimates your latitude/longitude geolocation from Sigfox signal strength. Computed based on past GPS coordinates and Sigfox signal strength collected by the UnaTumbler tracking device. Machine Learning based on Google TensorFlow, Google BigQuery, AWS SageMaker
- UnaRadar Sigfox Network Finder: Mobile web tool for showing the locations of nearby Sigfox basestations and their signal strengths with respect to your Sigfox device.
- UnaMap Sigfox Coverage Map: Web-based coverage map, computed based on past GPS coordinates and Sigfox signal strength collected by the UnaTumbler tracking device.
- UnaShield Sigfox Shield for Arduino: Arduino library that powers the communication between UnaShield and Sigfox - https://github.com/UnaBiz/unabiz-arduino
- UnaBell Smart Button on Sigfox: Cloud server that powers the smart button
- sigfox-gcloud Open Source Sigfox Server for Google Cloud: https://github.com/UnaBiz/sigfox-gcloud
- sigfox-aws Open Source Sigfox Server for Amazon Web Services: https://github.com/UnaBiz/sigfox-aws

Principal Consultant at Konica Minolta Business Innovation Centre November 2014- September 2016 (SG) Singapore https://bic.konicaminolta.asia

He heads the software development/engineering team that architects, develops and executes proof-of-concept (POC) projects for incubating new businesses for Konica Minolta. He was also consulted for technical due diligence in investment projects and acquisitions. Projects executed include:

Straight-Through Food & Beverage (F&B) Ordering System: Deployed in Singapore and Australia, he created the system that allows mobile users to place food orders through a mobile app and submit directly to the Point Of Sales System and the Kitchen Display System. The Kitchen Display System automatically calls the user when the order is ready for collection. Loyalty points and digital receipts are automatically populated in the app, through direct integration with the Lavu Point Of Sales system. Tools and platforms used: AWS (Lambda, S3, SQS, API Gateway, Mobile Analytics), Google BigQuery, Firebase, Parse, Magento 2, Loggly, Sumo Logic, Jenkins, Raygun, Slack, Azure, MongoDB, Node.js, Android, iOS (Swift), C#, Windows Presentation Foundation.

- Bluetooth Beacon Analytics: Profiling mobile users accurately using Bluetooth Beacon analytics and targeting them with highly-relevant promotions. Tested in large exhibitions and shopping malls. Based on Google BigQuery, Google Cloud Datalab, MongoDB, Node.js, Android, iOS.
- Other projects include Health/Wellness, Android Set-Top Boxes, Hospitality
- Chief Technology Officer at SingTel L!feLabs June 2009- November 2014
- (SG) Singapore https://singtel.com

Reports directly to CEO Group Digital L!fe, Mr Allen Lew. Responsible for scanning of innovative ICT technologies worldwide and executing proof-of-concept (POC) projects for the SingTel Group. He was also consulted for technical due diligence in SingTel Innov8 investment projects and SingTel Group Strategy acquisitions. Projects executed include:

- (1) Internet of Things (IoT); (2) Indoor Positioning; (3) Smart Retail; (4) Social Recommendation based on Facebook profiling; (5) Speech Recognition for Singapore English; (6) Image Recognition for Retail; (7) Motion Gesture User Experience; (8) Augmented Reality; (9) Cloud Gaming; (10) Virtual Reality; (11) Video Streaming and Distribution; (12) Home Automation
- Principal Consultant at NCS Pte Ltd September 1994- September 2012

  (SG) Singapore https://www.ncs.com.sg
- (Ca) chigapero intepon/www.noc.com.og
- Lead Enterprise Architect for Microsoft .NET technologies in Singapore's largest system integrator
- (1) IRAS Inland Revenue Integrated System; (2) Singapore Health Services Outpatient Administrative System; (3) Digital library systems for National Library Board, Singapore Polytechnic, Temasek Polytechnic, Singapore Airlines Engineering, SASCO; (4) Web portals for IDA MyeCitizen Portal, MINDEF NS Portal, MediaCorp MOBTV Portal; (5) YW8, Singapore's first mobile payment system by NETS, DBS, SingTel, M1, StarHub

#### **EDUCATION**

Master of Science, Computer Science at University of Illinois at Urbana-Champaign 1991 - 1992

(US) USA

Research Assistant for CHOICES Object-Oriented Operating System

Bachelor of Science, Computer Science at University of Toronto - University College

1988 - 1990

**♀** (CA) Canada

#### **PUBLICATIONS**

Safer, Simpler Embedded Programs with Rust on RIOT in RIOT Summit

11 September 2020

Tired of pointer problems on Embedded C? It's time to switch over to a safer, simpler way of coding: Embedded Rust. We'll look at Rust hosted on RIOT and how it's used to create LVGL watch apps for

PineTime Smart Watch.

#### Preview PineTime Watch Faces in your Web Browser with WebAssembly in GitHub

19 August 2020

How we build and preview PineTime Watch Faces with only a web browser... No computer needed!

#### Build PineTime Firmware in the Cloud with GitHub Actions in GitHub

27 July 2020

Learn to build PineTime Smart Watch Firmware in the Cloud... No computer needed!

#### Wayland and LVGL on PinePhone with Ubuntu Touch in GitHub

25 July 2020

Learn about Wayland and Ubuntu Touch on PinePhone... And how we build PinePhone Apps with LVGL

#### Flutter State Management with Bloc for PineTime Companion App in GitHub

27 June 2020

How we manage state with the Bloc Library in the Flutter Companion App (Android and iOS) for PineTime Smart Watch

#### PineTime doesn't run Linux... But that's OK! in GitHub

19 June 2020

Getting started with PineTime Smart Watch

#### Your First GTK App with Go and VSCodium in GitHub

18 June 2020

Creating desktop apps on Linux doesn't have to be hard... Let's build GTK+ 3 apps in Go with the gotk3 library!

#### Convert Go to Flutter and Dart for PineTime Companion App in GitHub

17 June 2020

How we build the Flutter Companion App (Android and iOS) for PineTime Smart Watch by converting Go to Dart

#### Your First Bluetooth Low Energy App with Flutter in GitHub

4 June 2020

Bluetooth Low Energy apps are ridiculously easy to code with Flutter and Dart, let me show you how!

Porting MicroPython and wasp-os to Mynewt on PineTime Smart Watch (nRF52) in GitHub

2 June 2020

Making wasp-os truly awesome with full multitasking, interoperable firmware updates and a common companion app

## Wireless Firmware Update In Action on PineTime Smart Watch (nRF52) in GitHub 20 May 2020

Observe step-by-step the Wireless Firmware Update running on PineTime Smart Watch (nRF52) with MCUBoot Bootloader, NimBLE Bluetooth LE Stack and Apache Mynewt

#### MCUBoot Bootloader for PineTime Smart Watch (nRF52) in GitHub

18 May 2020

Wireless Firmware Updates done right on PineTime Smart Watch... With the open source MCUBoot Bootloader from Apache Mynewt and Zephyr

#### Configure Mynewt for SPI Flash on PineTime Smart Watch (nRF52) in GitHub

15 May 2020

Configure Mynewt OS to enable access to SPI Flash Memory on PineTime Smart Watch

#### Firmware Update over Bluetooth Low Energy on PineTime Smart Watch in GitHub

11 May 2020

Flash any firmware to PineTime from our mobile phone... Without opening the watch!

#### CHIP-8 Game Emulator in Rust for PineTime Smart Watch in GitHub

5 March 2020

#### Visual Rust for PineTime Smart Watch in Visual Studio Marketplace

5 March 2020

#### My First Week As Embedded FOSS Advocate in Medium

4 February 2020

#### Debug RIOT-OS on PineTime with VSCode in Medium

2 February 2020

#### If you're in the East, please consider Rust! in Medium

24 January 2020

#### Debug Rust+Mynewt Firmware for PineTime on Raspberry Pi in Medium

23 January 2020

#### OpenOCD on Raspberry Pi: Better with SWD on SPI in Medium

18 January 2020

#### Build and Flash Rust+Mynewt Firmware for PineTime Smart Watch in Medium

8 January 2020

Optimising PineTime's Display Driver with Rust and Mynewt in Medium

29 December 2019

Porting [druid] Rust Widgets to PineTime Smart Watch in Medium

14 December 2019

My 5-Year IoT Mission in Medium

4 December 2019

Hey GD32 VF103 on RISC-V: I surrender... For now in Medium

23 November 2019

Building a Rust Driver for PineTime's Touch Controller in Medium

22 November 2019

Sneak Peek of PineTime Smart Watch... And why it's perfect for teaching IoT in Medium

15 November 2019

Porting Apache Mynewt OS to GigaDevice GD32 VF103 on RISC-V in Medium

30 October 2019

Bluetooth Mesh with nRF52 and Apache Mynewt in Medium

15 October 2019

Coding nRF52 with Rust and Apache Mynewt on Visual Studio Code in Medium

3 October 2019

Build an NB-IoT GPS Tracker on STM32 L476 with Apache Mynewt and Embedded Rust in Medium

22 September 2019

Quick Peek of Huawei LiteOS with NB-IoT on Ghostyu NB-EK-L476 Developer Kit (STM32L476RCT6) in

Medium

4 September 2019

Low Power NB-IoT on STM32 Blue Pill with Apache Mynewt and Embedded Rust in Medium

30 August 2019

Visual Embedded Rust Programming with Visual Studio Code in Medium

17 August 2019

Advanced Topics for Visual Embedded Rust Programming in Medium

17 August 2019

Rust Rocks NB-IoT! STM32 Blue Pill with Quectel BC95-G on Apache Mynewt in Medium

4 August 2019

Connect STM32 Blue Pill to NB-IoT with Quectel BC95-G and Apache Mynewt in Medium 25 July 2019

Get Started with NB-IoT and Quectel modules in Medium 15 July 2019

Visual Programming with Embedded Rust? Yes we can with Apache Mynewt and Google Blockly! in Medium

11 July 2019

Safer, Simpler Embedded Rust with Apache Mynewt on STM32 Blue Pill in Medium 7 July 2019

Hosting Embedded Rust apps on Apache Mynewt with STM32 Blue Pill in Medium 9 June 2019

Build Your IoT Sensor Network—STM32 Blue Pill + nRF24L01 + ESP8266 + Apache Mynewt + thethings.io in Medium 27 May 2019

Super Blue Pill—Like STM32 Blue Pill, But Better! in Medium 21 May 2019

Connect STM32 Blue Pill to ESP8266 with Apache Mynewt in Medium 20 April 2019

Create your IoT gadget with Apache Mynewt and STM32 Blue Pill in Medium 26 March 2019

Push AWS IoT sensor data to Redshift with Kinesis Firehose in Medium 10 March 2019

Transform and Import a JSON file into Amazon Redshift with AWS Glue in Medium 8 March 2019

Connecting AWS Lambda Node.JS to Redshift or PostgreSQL? Try AWS Lambda Layers! in Medium 6 March 2019

STM32 Blue Pill—Bootloading the WebUSB Bootloader in Medium 25 February 2019

STM32 Blue Pill—Dissecting the WebUSB Bootloader for MakeCode in Medium 16 February 2019

STM32 Blue Pill — Unit Testing with Qemu Blue Pill Emulator in Medium 7 February 2019

STM32 Blue Pill – Shrink your math libraries with Qfplib in Medium

30	January	2019	

#### STM32 Blue Pill—Analyse and Optimise Your RAM and ROM in Medium

24 January 2019

### STM32 Blue Pill USB Bootloader—How I fixed the USB Storage, Serial, DFU and WebUSB interfaces in

Medium

18 December 2018

#### STM32 Blue Pill Visual Programming with MakeCode, CODAL and libopenem3 in Medium

9 December 2018

#### Sigfox Teacher Answers Your Questions in Medium

7 December 2018

#### 以 thethings.iO 來將 BBC micro:bit 感測器圖形化 in Medium

29 November 2018

#### Visualising BBC micro:bit sensors with thethings.iO in Medium

17 November 2018

#### 連接 BBC micro:bit 與 Sigfox 物聯網 in Medium

13 November 2018

#### Connect BBC micro:bit to Sigfox in Medium

5 November 2018

#### 連接 STM32F103C8T6 Blue Pill 開發板與 Sigfox 物聯網 in Medium

17 October 2018

#### Connect STM32 Blue Pill to Sigfox in Medium

28 September 2018

#### Watch STM32 Blue Pill Juggle Two SPI Sensors With DMA in Medium

19 September 2018

#### Program Your First FPGA With GOWIN GW1N-4 in Medium

5 September 2018

#### Juggling STM32 Blue Pill For Arduino Jugglers in Medium

27 August 2018

#### Juggling Sigfox Downlink And Arduino Sensors With cocoOS in Medium

20 August 2018

#### Juggling Arduino Sensors With cocoOS in Medium

11 August 2018

Why use FPGA for IoT? Here's what I think... in Medium 31 July 2018

Coding the STM32 Blue Pill with Rust and Visual Studio Code in Medium 10 July 2018

Making my first ever PCB with Seeed Fusion PCB assembly service in Medium 5 July 2018

Running Rust and FreeRTOS on the PADI IoT Stamp in Medium 18 June 2018

First Impressions of Alibaba Cloud (Aliyun) in Medium 21 May 2018

Multitasking on the Arduino with a Finite State Machine – And why you'll need it for Sigfox Downlink in Medium 13 May 2018

Realtime sensor data processing with thethings.io and Amazon Web Services Kinesis in Medium 1 May 2018

I Teach IoT. Here's what you'll learn in Medium 24 April 2018

Developing cost-effective, energy efficient IoT solutions for outdoor as well as indoor applications in OpenGov

20 March 2018

Lup Yuen talks about two classes of IoT, 'deep' IoT and 'wide' IoT. Deep IoT devices require high bandwidth and power supply. UnaBiz looks at wide IoT, which refers to devices that are very light, battery-powered and operate on pervasive networks. They can work anytime, anywhere in Singapore and do not rely on WiFi or the cellular network.

How To Build Your Sigfox Server (Version 1.0) in Medium

14 October 2017

Story of the UnaShield in Medium

5 July 2017

IoT is a Bad Word in Medium

26 May 2017

Overcoming Productivity Challenges in the F&B Industry in Retail World Asia 2015 23 April 2015

Sigfox and Google Cloud Platform in Google Developer Group Singapore DevFest

20 October 2014

Patent: Enlargement of video content streamed from the internet in US Patent Office WO/2012/002906 30 June 2010

This invention relates to a system for displaying video content streamed from a network in a full screen mode. The system receives receiving a network address based on a selection from a user. The system then transmits a request for content from the network address and subsequently receives the content associated with the network address. A search is performed on the content for data that provides displaying a video content in a full screen mode. Upon detecting the data, the process generates the data and displays video content in full screen mode.

Patent: A system and method for providing mobile services in US Patent Office WO/2008/004981 27 June 2007

A system and method for providing mobile services, the system comprising: a mobile device executing a client application for generating a mobile service request; and a hub server for receiving and processing the mobile service request, wherein the mobile service request comprises location data of the mobile device, and the hub server pushes one or more mobile service offers to the mobile device based on the location data. The method comprises executing a client application for generating a mobile service request on a mobile device; receiving and processing the mobile service request at a hub server; and pushing one or more mobile service offers from the hub server to the mobile device based on location data, wherein the mobile service request comprises location data of the mobile device.

#### **LANGUAGES**

Mandarin **English** Cantonese Native speaker Native speaker Fluent

#### **INTERESTS**

How was this JSON

Resume created?

https://github.com/lupyuen/lupyu en.github.io/blob/master/READM

E.md