LEE Lup Yuen

Techie and Educator in IoT

Singapore SG
Born in 1969

https://lupyuen.github.io luppy@appkaki.com
lupyuen 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

SKILLS

Internet of Things (IoT)

Master

nb-iot | sigfox | lora | aws iot | google cloud iot | azure iot | thethings.io | ubidots | embedded rust | embedded c | arduino | stm32 | blue pill | esp8266 | nrf24l01

Cloud Computing

Master

aws | google cloud | azure | s3 | sagemaker | rds | dynamodb | lambda | api gateway | cloud functions | appengine | tensorflow | bigquery | node.js | go

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
(SG) Singapore http://www.tp.edu.sg

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

(SG) Singapore https://unabiz.com

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:

- Internet of Things (IoT): IoT promises to revolutionise the way we work, live and play through smart devices and sensors embedded everywhere, from wearables to homes to workplaces to the entire nation. (POC projects with Sigfox, Semtech LoRa, SeeControl, Vera, wearables, fitness trackers)
- Indoor Positioning: Getting people's precise location indoors for pushing highly-targeted, location-specific information (SenionLab, IndoorAtlas, Estimote)
- Smart Retail: Understanding consumer preferences through the shopping offers that they browse and the actual items that they bought. Cloud-based digital receipts and loyalty systems. Co-created SGMalls as a lean startup experiment in Smart Retail, which quickly became Singapore's #1 retail shopping app. (AppCard, Gigya, Bluetooth Beacons)
- Social Recommendation based on Facebook profiling: Predicting consumer behaviour based on posts in their social feeds (Correlor)
- Speech Recognition for Singapore English: Co-created Singapore's first speech recognition app to understand Singapore English. Hundreds of hours of speech recordings were used to tune the speech recogniser, which understands local commands like "Find the best char kway teow" (Novauris)
- Image Recognition for Retail (Visenze, Graymatics)
- Motion Gesture User Experience (PrimeSense, LeapMotion)
- Augmented Reality (Google Glass, PropertyBuddy)
- Cloud Gaming (Playcast)
- Virtual Reality (Oculus Rift)
- Video Streaming and Distribution: Created mio TV PLAY and mio TV GO apps (Microsoft PlayReady, Discretix)
- Home Automation (Vera, Z-Wave)

Principal Consultant at NCS Pte Ltd September 1994- September 2012

(SG) Singapore https://www.ncs.com.sg

Lead Enterprise Architect for Microsoft .NET technologies in Singapore's largest system integrator

- IRAS Inland Revenue Integrated System versions 1, 2 and 3: e-Filing and tax processing systems
- Singapore Health Services Outpatient Administrative System: Bespoke system for outpatient registration, appointments and billing at hospitals and polyclinics
- Digital library systems for National Library Board, Singapore Polytechnic, Temasek Polytechnic, Singapore Airlines Engineering, SASCO
- Web portals for IDA MyeCitizen Portal, MINDEF NS Portal, MediaCorp MOBTV Portal
- 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

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.

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 – 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

[Work In Progress] STM32 Blue Pill Visual Programming with MakeCode, CODAL and libopencm3 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

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

English
Native speaker

Mandarin
Native speaker

Cantonese
Fluent

INTERESTS

How was this JSON Resume created?

https://github.com/lupyuen/lupyuen.github.io/blob/master/README.md