Dinh Q. Nguyen (Nguyễn Quốc Đính)

Contact Information

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Working Interests

Distributed system, realtime system, IoT, web service.

Professional Experiences

Lead Software Eng., Gopay, Gojek, Nov 2020 - now

- Join as 3rd member of the Gopay engineer team in Vietnam.

Sr. Software Eng., Veriksystems Inc, Mar 2019 - Oct 2020

- Lead a backend group of six to provide outsourcing service to Belkin and Origin Wireless.
- Designed, implemented backend service, and collaborated with firmware, mobile teams from Veriksystems, OW, and Belkin to bring OW's Wifi motion detection sensing technology to Belkin's Linksys mesh network within 6 months. The result is Linksys Aware which received CES 2020 Innovation Award Product.
- Worked with OW to integrate their products to Verizon, Juan (Taiwan) system.
- Worked with OW to develop the cloud structure for their products (health care, home automation).
- Developed an open-source Gobench a benchmark framework that helps OW to test the system.

Sr. Software Eng., Zinno Inc, Jun 2016 - Feb 2019

- Lead a backend group of three. Work with firmware and mobile teams. Architecture a smart home system that consists of Zwave/Zigbee hub and battery-powered camera. Language using: Nodejs, Golang. All the projects are built TDD, BDD mind, run with Gitlab CI pipeline.
- Implemented API to manage user, home, hub, device, rule (if-this-then-that), and timeline.
- Implemented voice skills that connect to Alexa and Google assistant.
- Implemented FOTA service for devices to support firmware upgrading and text-to-speech converting with AWS Polly.
- Implemented simple notification filtering for a camera that sends notification only when motion triggered by a human within 5 seconds. Utilizing AWS Rekognition.
- Used AWS IoT as MQTT broker at first. Later make a small clone of AWS IoT with better policy and shadow doc. Zinno IoT based on aedes. Policy and shadow doc are stored in MongoDB. Events generated are sent to SQS.
- Designed payment service with Stripe.

Sr. Software Eng., Hubble Connected, Sept 2015 - May 2016

- Designed SDK for a Wifi bridge so that it can operate alone, can be controlled via mobile apps, and can be extended via external MCU.
- Designed non-Linux camera, run with RTOS and low power Wifi CC3100.

Co-founder, Ubisen, 2013 - 2015

- Led a group working in providing service for M2M/IoT networks.
- Designed many wireless sensor network motes, from Zigbee based SoC (ATmega128rfa1, CC2538) to Sub Ghz (ADuCRF101), to Wifi (ESP8266, CC3200).
- Designed cloud platform, powered by Nodejs, to connect to devices via REST API, websocket, and MQTT.

- Wrote COAP/HTTP proxy that runs on Linux box (e.g. Ras Pi, Beaglebone Black) to bridge sensor network to the Internet; contributed to coap.js library.
- Wrote opened OTA update for ESP8266 for both firmware, and server.

Embedded software consultant, SmartGrow, 2014

Lecturer, Industrial University of Ho Chi Minh City, 2011 - 2015

Researcher, Network System Lab., 2009 - 2011

Technical Skills

Information Technology: Comprehensive understanding of network protocols, such as TCP/IP, dynamic routing, SNMP, COAP, HTTP, MQTT, Pub-Sub, RPC.

Programming: Go, Nodejs, Java, C, git, Makefile, MySQL, MongoDB, InfluxDB, Redis, Kafka, Docker, Gitlab CI, AWS, K8S.

Open source:
- gobench: A distributed benchmark framework that support multiple protocols.
- esp8266-dev: ESP8266 Wifi SoC development environment, with OTA made easy.

Education

Kumoh National Institute of Technology, Gumi, S. Korea
M.Eng., Dept. of Control Embedded System,, Sept. 2009 - July 2011.
- Thesis Topic: *A gradient-based distributed traffic-aware routing for wireless networks.*
- Area of Study: Sensor Networks.

Ho Chi Minh City University of Technology, Ho Chi Minh City, Viet Nam
B.Eng., Electrical and Electronics Engineering, Sept. 2004 - June 2009.
- Bachelor of Engineering in Automatic Control, with Honors in Degree.
- Thesis Topic: Design a voice recognition system based on DSP TMSC2000.

Refereed Publications

Tan, Do Duy; Quoc Dinh, Nguyen; Kim, Dong-Seong: "GRATA: gradient-based traffic-aware routing for wireless sensor networks", *IET Wireless Sensor Systems*, 2013.

Quoc Dinh, Nguyen; Dong-Sung, Kim: "Performance evaluation of priority CSMA-CA mechanism on ISA100.11a wireless network." *Computer Standards & Interfaces*, 2012.

N. Q. Dinh, T. D. Hoa, and D.-S Kim. Distributed Traffic Aware Routing with Multiple Sinks in Wireless Sensor Networks. *9th IEEE Int. Conf. on Industrial Informatics*, INDIN 2011, Risbon, Portugal, 2003.

N. Q. Dinh , K.-S Song, P. T. A. Quang, and D.-S Kim. Periodic Data Transmission for Industrial Wireless Sensor Networks, *Int. Con. on Information and Computer Networks*, 2011, p186-190.

Language

Vietnamese: Mother tongue.
English: Quite good, got TOEIC 815 mark testing in April 2011.

CV updated Dec, 2020.