

Alexis Duque

PhD Student - R&D Leader

contact

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languages

French mother tongue
♥ Spanish bilingual
English fluency
Mandarin basic

programming

♥ C/C++, Java, JS
Android SDK and NDK
Objective C, Swift
Embedded Linux
STM32 MCU
ARM Cortex M0+, M3
Contiki, RIOT
Angular, Node, Cordova
PHP, Symfony2, Laravel
SQL, Bash, Python
Docker, Jenkins, Agile
Git, L^AT_EX

networks

♥ VLC - 802.15.7
♥ Bluetooth LE
802.15.4, 6LoWPAN
LPWAN, LoRa, Sigfox
♥ Network & IoT
security

work experience

2017–Now

Rtone

Lyon, France

R&D Leader, PhD student

PhD. : Visible Light Communications in a Smart City environment
Working toward bi-directionnal Device-to-Device communication using LED lights and smartphones. European patent application pending
Collaborative project development and management : H2020, Eurostars, FUI
Pentest and IoT Security consulting

2014– 2017

Rtone

Lyon, France

Embedded Software and Research Engineer

Micro-controller programming:

- Body-Area-Network development in a sport context (802.15.4)
- Low Power management and optimization
- STM32, ARM Cortex M0+, M0 and M3
- TI MSP430.

Bluetooth Low Energy firmware development on Nordic, Bluegiga SoC

Embedded Linux 3G Gateway: C++, Yocto Project

Mobile Applications :

- Bluetooth Low Energy
- Ultrasounds
- iOS SDK using Objective C and Swift
- Android SDK and NDK
- Cross-platform using Apache Cordova and Ionic

Web Applications :

- Evolution and improvement of various Java WebApp (Spring, Hibernate, GWT)
- OSGI Bundle development for the Eclipse Kura project using Eclipse Equinox

H1 2015

ENTEL, Universidad Politecnica de Cataluna

Barcelona, Spain

Light sensor development for the Ara platform

Research project within the Wireless Network Group, 5 months :

- Visible Light Communications (VLC) state of the art
- Development of a VLC front-end for the Google Ara modular smartphone
- Hardware design and firmware programming in C
- Android SDK and NDK programming

2013– Now

Freelance Developer

Lyon, France

Mobile and Web applications developer

Various mobile and web applications development using technologies such as Java, Swift, Symphony2/3, Angular, Polymer

Most relevant projects:

- Meeting reporting Android application for a knowledge management project (TechCico Laboratory, Universit  Technologique de Troyes)
- Intranet web application enabling energy consumption monitoring in a factory (Michelin Troyes)
- Web Application allowing fire protection system scaling and planning

education

2015–2018

PhD. Visible Light Communications in a Smart City environment
INRIA AGORA Team, funded by Rtone (French CIFRE fellowship)

CITI Lab

2009–2015

M.Eng. in Computer Science and Telecommunications.
Fifth year final semester abroad at the UPC-ETSETB, Spain
First two years in Asian international section

INSA de Lyon

publications

International conferences proceedings

A. Duque, R. Stanica, H. Rivano, C. Goursaud, and A. Desportes, **"Poster: Insights into RGB-LED to Smartphone Communication"**

in *Proceedings of the 2018 International Conference on Embedded Wireless Systems and Networks EWSN'18*, (Madrid, Spain)

A. Duque, R. Stanica, H. Rivano, and A. Desportes, **"Decoding methods in LED-to-smartphone bidirectional communication for the IoT"**

in *Proceedings of the 2018 Global LIFI Congress (GLC) GLC'18*, (Paris, France)

A. Duque, R. Stanica, H. Rivano, and A. Desportes, **"SeedLight: Hardening LED-to-Camera Communication with Random Linear Coding"**

in *Proceedings of the 4th Workshop on Visible Light Communication System VLCS'17*, (Snowbird, Utah, USA)

A. Duque, R. Stanica, H. Rivano, and A. Desportes, **"Demo : Off-the-shelf bi-directional visible light communication module for IoT devices and smartphones"**

in *Proceedings of the 2017 International Conference on Embedded Wireless Systems and Networks EWSN'17*, (Uppsala, Sweden), 2017

A. Duque, R. Stanica, H. Rivano, and A. Desportes, **"Unleashing the power of led- to-camera communications for iot devices"**

in *Proceedings of the 3rd Workshop on Visible Light Communication System VLCS'16*, (New York, NY, USA)

A. Duque, R. Stanica, H. Rivano, and A. Desportes, **"Demo: Unleashing the power of led- to-camera communications for iot devices"**

in *Proceedings of the 3rd Workshop on Visible Light Communication Systems VLCS'16*, (New York, NY, USA)

interests

professional : technological watch, free and open-source software activist, contributor at OpenMRS, Google Summer of Code 2014 and 2016 student

sport : duathlon, cycling, athletics (national level)

culture : reading, practicing the classical and electric guitar