

# Maria Teresa Blanco Abad

## EDUCATION

### **Delft University of Technology, TU Delft**

*M.Sc. in Embedded Systems, Concentration in Software and Networking.*

MSc thesis title: "Designing and implementing SFMAC: A MAC protocol for LoRa networks for efficient use of unlicensed bands" Grade: 8.5/10.

**Delft, Netherlands**

Sept. 2018 – Dec. 2020

### **Chalmers University**

*Exchange semester as part of the UNITECH Program*

Followed M.Sc. level courses in Telecommunication Engineering and Management of Technologies.

**Gothenburg, Sweden**

Sept. 2019 – Jan. 2020

### **University of Rhode Island**

*Study abroad one year as part of the North America scholarship of University of Zaragoza.*

B.Sc. thesis title: "SARNET: Search and Rescue Network". GPA 3.86/4, on Dean's list.

**Kingston, Rhode Island, USA**

Sept. 2016 – May. 2017

### **Universidad de Zaragoza**

*B.Sc. in Industrial Engineering Technology*

**Zaragoza, Spain**

Sept. 2013 – May. 2017

## WORK EXPERIENCE

### **Geberit**

*Digital Products Technical Intern*

**Rapperswil-Jona, Switzerland**

Jan. 2021 – April 2021

- Reduced external consultancy costs for a current piping project by building a temperature-logging device using Python, Bash and Azure APIs (App Service, IoT Hub). The data gathered lead to modifying initial development assumptions.
- Developed a fast prototype for validating an idea for a roof drainage system: a roof control system built with a Raspberry Pi, sensors, Python, and a cloud solution for hosting an online dashboard resulted in the start of a market research for potential customers.
- Created training material, programmed in C++ an ESP32 and conducted an IoT workshop for 4 senior managers at Geberit leading to the establishment of technical workshops to encourage development of digital products.

### **Silverwing**

*Part-Time Embedded Software Developer*

**Delft, Netherlands**

Oct. 2018 – Sept. 2019

- Programmed in C++ the CAN communication interface between the flight computer and the flying vehicle's propellers. Integrated the C++ application in the software stack of the RTOS flight control platform. Acted as responsible for Software during the performance tests of the propellers.
- Selected electrical components for the actuation of the control surfaces of the vehicle.

### **TWTG**

*Embedded Software Intern*

**Rotterdam, Netherlands**

June 2019 – Aug. 2019

- Deployed a DNS and network server on a Raspberry Pi for the LoRa gateway. Enabled the communication between the web application and the network server through MQTT to schedule over-the-air firmware updates.
- Improved and tested an application in C++ to perform firmware updates over the air in LoRa devices.

### **Amadeus IT group**

*Software Development Intern*

**Boston, USA**

May 2017 – March 2018

- Developed features in Java 8 and XML for the back-end of a web application for business trips bookings. The web users are Amadeus employees from the offices in North America and corporate clients.
- Designed the Software architecture for a real-time dashboard: used Python, Amadeus internal APIs, Ruby on Rails, CSS, and HTML5.
- Followed Scrum methodology to track the tasks completed and to ensure continuous deployment of Software.

## PROJECT WORK

### **MSc thesis**

**TU Delft**

Jan. 2020 – Nov. 2020

- Simulated in ns3, C++, LoRa networks and designed a MAC protocol. Tested the protocol with traffic from a COVID-19 social-distancing-monitoring application leading to double traffic capacity compared to current LoRa networks.
- Developed in Python scripts for optimizations using Gurobi solver. Used scikit-learn and statsmodels to perform statistical and time series analysis of the traffic generated in the LoRa network.

### **Quadcopter control**

**TU Delft**

Mar. 2019 – Jun. 2019

- Programmed in C the main functions for control of a quadcopter: communication protocol for RS232, pitch yaw and roll control, filtering of raw data from sensors with a Kalman filter.

### **SmartPhone Sensing**

**TU Delft**

Mar. 2019 – Jun. 2019

- Developed an Android App for indoor localization. Used Bayesian inference to locate the user by determining the closest indoor WiFi router. Tested and optimized the output from different phone sensors: gyroscope, magnetometer, accelerometer.

## LEADERSHIP EXPERIENCE

### **UNITECH Program Participant**

Sept. 2019 – Aug. 2020

- **Jan. 2020.** Presented a preliminary study for developing a new product to the management of a corporate partner. Deliverables: research of the sanitary ware market, composition of a business canvas, proposal of the technical features and development of a high-level marketing strategy.

- **Sept. 2019.** Attended a one-week module in ETH Zurich consisting of workshops guided by corporate partner coaches focused on core-relational, leadership and management skills.

#### **Representative of Industrial Engineering students**

Sept. 2014 – June 2016

- Acted as the main link between the Bachelor's coordinator and students (around 200 students). Deliverables: scheduling of exams, solving inconsistencies in the content of courses, organizing the Bachelor's graduation event.
- **March 2016.** Organized a symposium during the Engineering Cultural week.

#### **TECHNICAL SKILLS**

**Software:** Python (Advanced) | C (Advanced) | C++ (Advanced) | Java - Android and Mockito (Intermediate) | CSS and HTML5 (Basic) | Node.JS (Basic) | Azure (IoT Hub, Event Hub, Blob Storage) | Bash scripting UNIX/Linux (Basic)

**Hardware:** Raspberry Pi | ARM MCUs | Arduino | USRP, software defined radio | OcPoc, RTOS real-time operating system

#### **OTHER SKILLS**

**Languages:** Spanish (Native) | English (Full professional working proficiency) | French (Professional working proficiency) | Dutch (Elementary)