Maria Teresa Blanco Abad

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Education

Sept. 2018 – Dec. 2020 | **MSc in Embedded Systems** | **Delft University of Technology (TU Delft), NL**

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

Sept. 2019 – Dec. 2019 | **Exchange student** | **Chalmers University, Sweden**

Exchange as part of the *UNITECH* programme. Attended Management and Telecommunication Engineering courses

Sept. 2016 – May 2017 | **Exchange student** | **University of Rhode Island (URI), USA**

Attended Electrical and Mechanical courses. BSc thesis title: "SARNET: Search and Rescue Network". GPA 3.86/4, on Dean's list

Sept. 2013 – May 2017 | **BSc in Industrial Engineering Technology** | **University of Zaragoza, Spain**

Degree equivalent to Mechanical/Electrical Engineering with a concentration in Electronics

Experience

Oct. 2018 - Sept. 2019 | **Part-Time Electrical engineer** | **Silverwing, Delft, NL**

- Programmed in C++ the CAN communication interface between the flight computer and the flying vehicle's propellers. Responsible for Software during the performance tests of the propellers
- Selected electrical components for the actuation of the control surfaces of the vehicle. Contacted suppliers and established a partnership to sponsor the actuators for the vehicle

June 2019 - Aug. 2019 | **Embedded Software intern** | **TWTG, Rotterdam, NL**

- Deployed a DNS and network server on a Raspberry Pi for the LoRa gateway. Used mosquitto (an MQTT protocol using a publish/subscribe model) to communicate between the web application and the network server to schedule the firmware update
- Improved and tested an application in C++ to perform firmware updates over the air in LoRa devices

Sept. 2017 – Mar. 2018 | **Software development intern** | **Amadeus IT Group, Boston, USA**

- Helped in the development of the back-end of a web application in Java 8 and XML for booking of business trips. Used Mockito for Unit tests
- Followed Scrum methodology to track the tasks completed and to ensure continuous deployment of Software

May 2017 – Sept. 2017 | **Software development intern** | **Amadeus IT Group, Boston, USA**

- Designed the Software architecture for a real-time dashboard: used Python and Amadeus internal APIs for automating the data collection. Selected Ruby on Rails, CSS, HTML5 for rendering the dashboard
- Performed a selection of the Key Performance Indicators (KPI) to be displayed in the dashboard resulting in an improvement of the visibility of the work produced by 20 Software Engineers in the Front Office Reservation department

Software and Electrical Engineering projects

Jan. 2020 - Dec. 2020 | **MSc thesis**: "Designing and implementing SFMAC: A MAC protocol for LoRa networks for efficient use of unlicensed bands" | **Embedded and Networked Systems, TU Delft**

- Simulated in ns3 (C++) LoRa networks to increase the number of devices that can be served. Tested the MAC protocol implementation in a LoRa network with traffic from a COVID-19 social distancing monitoring application leading to double packet reception ratio, PRR, compared to current LoRa deployments
- Programmed in Python scripts for optimizations (Gurobi solver) and Data Analysis. Used Matplotlib to create graphs and scikit-learn and statsmodels to perform statistical and time series analysis of the traffic generated in the LoRa network
- Scheduled simulation jobs in the university cluster by using Bash Shell scripts

Mar. 2019 - Jun. 2019 | **Quadcopter control** | **TU Delft**

- 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 (Kalman filtering)

Mar. 2019 - Jun. 2019 | **SmartPhone Sensing** | **TU Delft**

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

Sept. 2018 - Nov. 2018	**AdHoc networks**	**TU Delft**

- Deployed an AdHoc network to control a robot car. Applied networking concepts and used C skills to program the Arduino controlling the robot

Sept. 2016 - May 2017	**Electrical Capstone Design Project**: "SARNET, Search and Rescue Network"	**URI**

- Integrated COTS (commercial off-the-shelf) hardware to create a networked platform capable of performing image processing (visual and thermal), parsing GPS metadata, or communicating with the base station
- Used OpenCV to detect contours in thermal images and Python, Bash Shell to run scripts on a Raspberry Pi

Software and Hardware Skills

Programming languages
Python (Advanced), C (Advanced), C++ (Advanced), Java - Android and Mockito (Intermediate), Ruby (Basic), CSS and HTML5 (Basic), Bash scripting UNIX/Linux (Basic)

Engineering Software
Matlab (Advanced), GNURadio (Advanced), Git (Advanced)

Hardware
Raspberry Pi, ARM MCUs, Arduino, USRP (software defined radio), OcPoc (RTOS real-time operating system)

Honours

Jan. 2016	**Northamerica, Asia and Oceania scholarship**	**University of Zaragoza**

Scholarship to study one year abroad in the USA. The acceptance rate was 20%

May 2013	**Graduated-with-honours scholarship**	**High School Sansueña, Zaragoza**

Graduated with honours in High School. Scholarship for the first year of Bachelor's degree. The acceptance rate was 6.25%

Activities

Sept. 2019 - Aug. 2020	**Student participant**	**UNITECH International Programme**

- **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
- **Jan. 2020**. Presented a preliminary study for developing a new product for the R&D department of Geberit (participating company). Developed in a team a case study and presented to the company representative (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. 2014 - June 2016	**Representative of Industrial Engineering students**	**University of Zaragoza**

- Acted as the main link between the Bachelor's coordinator and 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

Languages

Spanish, native language
English, full professional proficiency, Level C1, TOEFL IBT test (Score: 114, Jan. 2018)
French, professional working proficiency, Level B2, DELF test
Dutch, elementary, level A2