DOS SANTOS JESSYE

FRANCE | jessye.dossantos@gmail.com | +33671737005
https://github.com/jdossantos38/resume.git

CAREER PLANNING

SOFTWARE SOLUTIONS TO IMPROVE PERFORMANCES OF SENSOR MOTES FOR INTERNET OF THINGS AND WIRELESS SENSOR NETWORKS APPLICATIONS.

QUALIFIED IN 61 CNU SECTION

EDUCATION

GRENOBLE ALPES UNIVERSITY GRENOBLE, FRANCE

PH.D IN MATHEMATICS AND COMPUTER SCIENCES. 08-2017

Specializing in **security** and **privacy** mechanisms for IoT networks

POLYTECH ENGINEER SCHOOL GRENOBLE, FRANCE

FRENCH MASTER'S DEGREE IN ENGINEERING. 09-2013

Enhancing **embedded systems (software and hardware)** competences

Specializing in **automation**, **signal and image** processing

WORK EXPERIENCE

ASSISTANT PROFESSOR ESTIA, BIDART (64), FRANCE

2017-2022

Research and Development

- **Energy consumption performances:** Deployment of **dynamic duty cycle and task scheduler** using several parameters from application to hardware.
- **Computing performances**:
  Artificial intelligence for ressource constrained nodes to detect plastic on the beach.
  Decision algorithms embedded in sensors closed to process for Industry4.0.
- **6LoWPAN WSN testbed**: platform with MSP430 and CC2420 sensors motes embedding ContikiOS. Gateway to feed a Python GUI. Data printed in real time.
- Energy monitoring system: **shunt with Aop and oscilloscope** to identify each hardware consumption. In situ supervising tool under development.

Teaching

- Automation: GRAFCET/Automgen
- Automatic: continuous and discret system correction
- Radio frequency communications: transmitter's hardware, antenna, Friis formula, Media access, wireless standards…
- Embedded systems: developpement on PIC MCU, registers programmation to enhance software performances
- C language: project and basic knowledge
- Versionning system – GIT and GITHUB
- Bachelor Project: technical help during final steps
- Image processing
- RSE projects

Management

- Internship supervision
- Leader of Bachelor of technologies Teaching Unit (Project and Technologies Unit)
  - 3 years studies
  - 90 students in average
  - 26 teaching modules
  - Internships management
  - Management of the 3 years student project from specification requirements to demonstrator

PH.D STUDENT CEA, LETI, GRENOBLE (38), FRANCE

2013-2017

Research and Developpement

- **IEEE 802.15.4 WSN deployment**: platform based on Contiki3.0 OS and Openmote nodes. Contiki-based **sniffer** as privacy analysis tool. Collecting by eavesdropping data exchanged into these WSN.
- **Data analysing**: use **Wireshark** and a Python software to hightlight common privacy leaks.
- Software Security and Privacy solution: proposing **Ephemeral,** a solution embedded on OS to provide **dynamic pseudonyms**. Analyzing network performances in simulation and in real deployment.

FINAL-YEAR PROJECT CEA, LITEN, GRENOBLE (38), FRANCE

APRIL 2013-AUGUST 2013

Research and Developpement

- Understanding the communications protocol: **reverse engineering** on CAN buses
- **System monitoring deployment**: sensors invisible for driver deployed on electrical vehicules to caracterise the battery pack ages.
- **Data analysing**: collecting and processing data to obtain a long-term feedback.
- **Datasheet creation**: to allow the duplication of the monitoring system.

PROFESSIONAL SKILLS

IT:

- Tools: Virtual Box, GIT, GITHUB
- OS: Contiki OS, Debian, Ubuntu, Linux, Raspbian
- Network Simulators: WSNET, COOJA

Hardware:

- MCU: MSP430, PIC, RASPBERRY PI, ARDUINO, ARM
- Buses: SPI, I2C, CAN (reverse engineering), USB
- Sensors: temperature, humidity, luminosity, accelerometer
- Measurement tools: oscilloscope, AOP, serial analyzer, wireshark, jtag, gdb, valgrind

Programming:

- Working knowledge: embedded C, Python, Java, MATLAB, shell, GNU
- School knowledge: C++, assembly language, ladder, GRAFCET, RUST

Network:

- Standards: 6LoWPAN, ZigBee, IEEE 802.15.4, LORA, SIGFOX
- Protocols: OSI model, TSCH, IPv6, RPL, UDP, TCP, CoAP, MQTT

Security:

- Lightweight security and privacy
- Symetric and asymetric ciphering: AES, CBC, CTR algorithms
- TLS, IPSec

Other: Solidworks, Moodle, TEAMS, ZOOM, LaTeX

Language: French (mother tongue), English (working and social knowledge), Spanish (moderate), Basque (few words)

DRIVING: FRENCH CLEAN DRIVING LICENCE

PUBLICATIONS

DOS SANTOS, J., HENNEBERT, C., FONBONNE J.C., & LAURADOUX, C. (2016, September). Ephemeral: Lightweight pseudonyms for 6LoWPAN MAC addresses. In *Personal, Indoor and Mobile Radio Communications (PIMRC)*.

DOS SANTOS, J., HENNEBERT, C., & LAURADOUX, C. (2015, December). Preserving privacy in secured ZigBee wireless sensor networks. In *Internet of Things (WF-IoT), 2015 IEEE 2nd World Forum on* (pp. 715-720). IEEE.

HENNEBERT, C., & **DOS SANTOS, J.** (2014). Security protocols and privacy issues into 6lowpan stack: a synthesis. *Internet of things journal, ieee*, *1*(5), 384-398.

Llaria, A., **DOS SANTOS, J.**, Terrasson, G., Boussaada, Z., Merlo, C., & Curea, O. (2021). Intelligent Buildings in Smart Grids: A Survey on Security and Privacy Issues Related to Energy Management. *Energies*, *14*(9), 2733.

DOS SANTOS, J., Terrasson, G., & Llaria, A. (2020, October). Improving Low Power Listening (LPL) Mechanism to Save Energy Consumption in WSN. In *2020 IEEE Sensors* (pp. 1-4). IEEE.

Bakni, M., Terrasson, G., Curea O., Llaria, A. & **DOS SANTOS, J.** (2020) An Approach for Modelling Wireless Sensor Networks: Focusing on the Design Concept and Energy Awareness. In *International Journal On Advances in Networks and Services*, IARIA, 13 (1 & 2), pp.33-44.

Bakni, M., Terrasson, G., Curea, O., Llaria, A. & **DOS SANTOS, J**. (2019, October) Energy-aware Cross-level Model for Wireless Sensor Networks. In SENSORCOMM2019, IARIA, pp.46-51.

Bakni, M., Curea, O., Terrasson, G., Llaria, A., **DOS SANTOS, J**. (2019, June) A Cross-level model for power-aware Wireless Senso Networks design. 13ème colloque National du GDR SOC2.

MISCELLANEOUS

Soccer: playing in a team

School: helping to collect funds for the school, proposing and organizing new events

Personal Projects: Photobooth with Rpi and Canon 600D, Home automation systems with Arduino

Baking: macarons, cakes, cake design

REFERENCES

references available upon request