

Afonso RAPOSO



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Hello world!

I am passionate about learning new skills and developing challenging projects, which you can verify on my GitHub. I love tinkering with new technologies and finding the solution to problems. I am motivated and focused, thus I can't rest until my code runs!

EXPERIENCE

Aug 2022	Head of Software, SCIENTISST
Jan 2021	Development of APIs for interacting with microcontrollers used for biosignals acquisition; a standalone Progressive Web App (PWA) that allows the acquisition, plotting, and recording of biosignals; and maintenance of the BioSPPy project, a Python toolbox for biosignal processing. Flutter HTML/CSS Javascript Python Vue.js
Aug 2022	Research Fellow, AIMHEALTH PROJECT - DSAIPA/AI/0122/2020
Mar 2021	Development of a mobile application focused in biosignals acquisition and telemedicine; and system administration of a VPS running dockerized servers. Appwrite Docker Flutter Linux Nginx
Jun 2022	Teaching Assistant, INSTITUTO SUPERIOR TÉCNICO
Mar 2022	Laboratory classes of the “Instrumentation and Acquisition of Biosignals” course of the Biomedical Engineering degree. Arduino Electronics Python
Mar 2022	Full Stack Developer, SEMANA DA BIOENGENHARIA
Feb 2020	Development of a mobile (Android/iOS) and web application using Flutter and Firebase. Firebase Flutter
Sep 2020	Research Fellow, E-CoVIG - 255_596880547
Apr 2020	Development of a mobile application using Flutter for monitoring COVID-19 patients. Flutter Java
Jun 2020	Full Stack Developer, TEDxULISBOA
Jul 2018	Development of the TEDxULisboa 2020 event's application using Flutter and Firebase; and the TEDxULisboa 2019 event's using Java Android and Firebase. Firebase Flutter Java Android
Jul 2018	Web Developer, TEDxISTALAMEDA
Jul 2017	Development of the TEDxISTAlameda 2018 website using HTML, CSS and JavaScript. CSS Javascript HTML

EDUCATION

2021-2022	(DNF) PhD in Biomedical Engineering , Instituto Superior Técnico, Lisbon, Portugal
2018-2021	MSc in Biomedical Engineering , Instituto Superior Técnico, Lisbon, Portugal
2018-2019	Exchange Program - Erasmus , Politecnico di Torino, Turin, Italy
2015-2018	BSc in Biomedical Engineering , Instituto Superior Técnico, Lisbon, Portugal

SKILLS

Programming Languages	C#, Dart, Lua, HTML/CSS, Java, Javascript, Matlab, PHP, Python, SQL, TypeScript
Frameworks	Flutter, Vue.js
Applications & Tools	Android Studio, AppWrite, Arduino, Docker, Firebase, Git, Latex, Nginx, NeoVim, Unity, VS-Code, Xcode
Languages	Portuguese (native), English (fluent), Italian and Spanish (beginner)

🏆 AWARDS

- 2020 **Academic Merit Diploma**, Instituto Superior Técnico, Lisbon, Portugal
- 2015-2020 **Merit Studentship - Gulbenkian+**, Calouste Gulbenkian Foundation, Portugal
- 2019 **1st Place at BET24 Innovation Challenge**, BNP Paribas, Lisbon, Portugal
- 2018 **Honorable Mention at BioMind**, Instituto Superior Técnico, Lisbon, Portugal
- 2018 **Academic Merit Diploma**, Instituto Superior Técnico, Lisbon, Portugal
- 2016 **Academic Merit Diploma**, Instituto Superior Técnico, Lisbon, Portugal

📖 PUBLICATIONS

- 2021 Raposo, A.; Marques, L.; Correia, R.; Melo, F.; Valente, J.; Pereira, T.; Rosário, L.B.; Froes, F.; Sanches, J.; Silva, H.P.d. **e-CoVig: A Novel mHealth System for Remote Monitoring of Symptoms in COVID-19**. *Sensors* 2021, 21, 3397. 10.3390/s21103397
- 2021 Raposo, A.; Silva, H.P.d.; Sanches, J. **Camera-based Photoplethysmography (cbPPG) using smartphone rear and frontal cameras: an experimental study**. 43rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 2021. 10.1109/embc46164.2021.9630847
- 2021 Raposo, A.; Melo, F.; Silva, H.P.d.; Sanches, J. **Low-Cost Pulse Oximetry and Infra-Red Temperature Device for COVID-19 Patients**. 27th Portuguese Conference on Pattern Recognition - RECPAD 2021, 2021.
- 2021 Raposo, A.; Azeitona, A.; Afonso, M.; Sanches, J. **Ultrasound denoising using the pix2pix GAN**. 27th Portuguese Conference on Pattern Recognition - RECPAD 2021, 2021.

📄 PATENTS

- 2022 (pending) A. Raposo, H. P. Silva, and J. Sanches. Sistema para Determinação de Sinais Biomédicos e Respetivo Método de Operação. Portugal Patent. DP/01/2022/77965

💻 PROJECTS

SENSE WEB

2022

🔗 [SENSE](#) 🌐 github.com/scientisst/sense-web

Development of a progressive web application using Vue.js that allows the acquisition of biosignals signals using a ScientISST Sense device and serial-based devices (e.g. Arduino). The application enables the live plotting and recording of time-series.

[Chart.js](#) [HTML/CSS](#) [Javascript](#) [Vue.js](#)

SCIENTISST SENSE JAVASCRIPT API

2022

🔗 [npm](#) 🌐 github.com/scientisst/scientisst-sense-api-web

Development of an API that interacts with an ESP32-based device for biosignals acquisition. The API comprises Bluetooth serial communication using the Web Serial API, as well as wifi-based communication using Web Sockets.

[Javascript](#) [Web Serial API](#) [WebSocket](#)

SCIENTISST SENSE PYTHON API

2021-2022

🔗 [PyPI](#) 🌐 github.com/scientisst/scientisst-sense-api-python 📖 [Wiki](#)

Development of an API that interacts with an ESP32-based device for biosignals acquisition. The API comprises Bluetooth serial communication, as well as wifi-based communication using TCP and UDP.

[NumPy](#) [Lab Streaming Layer](#) [Multithreading](#) [Python](#) [Sockets](#)

BUTTONS_TABBAR

2020-2022

🔗 [pub.dev](#) 🌐 github.com/afonsocraposo/buttons_tabbar

Development of Flutter package that implements a TabBar where each tab indicator is a togglable button.

[Dart](#) [Flutter](#)

SENSE FLUTTER

2021

🔗 [Google Play Store](#) 🌐 github.com/scientisst/sense-flutter

Development of a mobile application using Flutter that allows the acquisition of biosignals signals using a ScientISST Sense device. The application enables the live plotting and recording of time-series.

[charts_common](#) [charts_flutter](#) [Flutter](#)

- SCIENTISST SENSE FLUTTER API** 2021
[pub.dev](#) [github.com/scientisst/scientisst-sense-api-flutter](#)
Development of an API that interacts with an ESP32-based device for biosignals acquisition. The API comprises Bluetooth serial communication.
[Bluetooth Serial](#) [Dart](#) [Flutter](#)
- SCIENTISST_DB** 2021
[pub.dev](#) [github.com/scientisst/scientisst_db](#)
Open source Flutter package that implements a NoSQL document-based local database. The syntax of this package is similar to other well-known databases, organizing its data in collections and documents.
[Dart](#) [Flutter](#)
- FLUTTER ICON FINDER** 2021
[Website](#) [github.com/afonsocraposo/icon_finder](#)
A website built using Flutter that helps users search through the available Flutter icons. Deployed with Firebase.
[Firebase](#) [Flutter](#)
- €/PINGO DOCE** 2021
[Chrome Extension](#) [github.com/afonsocraposo/chrome-pingo-doce](#)
A simple Google Chrome extension that allows its users to sort the products by price per quantity at Pingo Doce online store.
[Javascript](#) [Typescript](#)
- SNAKES.JS** 2021
[Web Game](#) [github.com/afonsocraposo/snakes.js/](#)
A fun Javascript game based on the classic Snake game. In this game, two players (1v1) can compete to see which can grow the largest snake, while also being able to eat the other player if he's smaller.
[Javascript](#)
- E-CoVig** 2020
[Google Play Store](#) [Website](#) [Video](#)
Development of a mobile application using Flutter for monitoring COVID-19 patients using the smartphone as the core vital signs sensor. This project included the development of a specialized wearable, to which I also contributed, for measuring body temperature, heart rate, and blood oxygenation, and counted with the collaboration of multiple entities: National Health Service entity (Hospital de Santa Maria), two institutions of the national R&D system (Instituto de Sistemas e Robótica, and Instituto de Telecomunicações) and an SME (BrainAnswer).
[Arduino](#) [Dart](#) [Flutter](#) [Java Android](#)
- MANUAL_CAMERA** 2020
[pub.dev](#) [github.com/afonsocraposo/manual_camera](#)
Development of Flutter plugin that allows the definition of manual parameters for the Android camera.
[Dart](#) [Flutter](#) [Java Android](#)
- REDDIT VIDEO** 2020
[Example](#) [github.com/afonsocraposo/reddit-video](#)
Implementation of a Python program that generates videos from Reddit Portuguese threads, using Text-To-Speech and FFmpeg.
[Python](#)
- BITALINO** 2020
[pub.dev](#) [github.com/afonsocraposo/bitalino](#)
Flutter Plugin Development of Flutter plugin that integrates the communication with BITalino devices in Android and iOS operating systems.
[Dart](#) [Flutter](#) [Java Android](#) [Objective-C](#)
- CHICKEN EVOLUTION** 2019
[Video](#) [github.com/afonsocraposo/Chicken-Evolution](#)
Implementation of a genetic algorithm in Unity using chickens.
[C#](#) [Unity](#)
- GENETIC NEURAL NETWORK FLAPPY BIRD** 2018
[Video](#) [github.com/afonsocraposo/Genetic-Neural-Network-FlappyBird](#)
Development of a genetic algorithm coupled with neural networks for teaching an AI agent to play the well-known game Flappy Bird.
[PyGame](#) [Python](#)