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ABOUT ME

I am a computer science engineer, top 7% graduates of my graduating class of 2022. I have also been a member of CERN's Summer Students program in 2022. I am constantly learning and reviewing new web development technologies Frontend, Backend, DevOps and state of the art in AI areas such as image processing.

WORK EXPERIENCE

5 DEC 2022 – CURRENT Guayaquil, Ecuador
FULLSTACK DEVELOPER GALILEO

As software developer I perform the following activities:

- Development of a cross-platform app based on React with Cordova on Typescript to be distributed on iOS and Android devices following SOLID principles.
- Creation of banking transactional features, complying with an optimal UI/UX for a correct understanding for the user of the app
- Implementation and customization of native Java plugins for iOS and Android to be used from React with Typescript. Ej plugins: Background execution, Biometry API (fingerprint API and FaceID), Contacts API.
- Prototype on Zeplin tool and creation of new react components to build new sections, schema validated forms, shared components with React, TypeScript and styling with Scss.
- Component status management with Redux-Thunks and lifecycle with hooks.
- Creation, modification and fix of endpoints on Java backend with Spring Boot for banking business.

I have also been appointed as Product Owner, for one of the replicas of the banking application. The activities that I develop are the following:

- Coordinate meetings with country bank managers.
- Report and monitor the progress of Jira issues raised both from our side as developer to the Bank and vice versa.

7 APR 2020 – 11 MAY 2023 Guayaquil, Ecuador
ARTIFICIAL INTELLIGENCE TECHNICAL RESEARCHER ESPOL

- Publication on [Springer Nature](#) of my proposal Conv-SeTr model (Subthalamic Nucleus and Substantia Nigra Automatic Segmentation Using Convolutional Segmentation Transformers).
- Research and definition of pipelines for data preprocessing for timelines and 3D images and configuration of NVIDIA GPU training environments and use of high-end computers (CEDIA) through jupyter notebooks.
- Data visualization of pre-processed data through libraries such as matplotlib and seaborn. Real-time recording and tracking of training performance through personally-authored callbacks, to be accessible on Telegram and Webhooks. Saving of metrics and model performance with Tensorboard for later analysis.
- Creation of LSTM based model to predict the behavior of CPU usage in Telconet's datacenter in Ecuador, from time series of the percentage of CPU usage recorded to trigger early warnings according to a specified limit.
- Creation of Transformers based model to segment the regions of the substantia nigra and subthalamic nucleus from T1-weighted MRI. In order to provide a model to assist in possible interventions to help in the treatment of Parkinson's disease.
- Creation of Transformers based model to find and classify T1-weighted MRI to patterns of mental disorder associated with Parkinson's disease.

20 OCT 2020 – 24 NOV 2022 Guayaquil, Ecuador
SOFTWARE DEVELOPER SHIPPIFY

- Prototype on Figma tool and implementation of new web components applications on React with JavaScript and styling with Scss following SOLID principles and good coding practices and test-driven development (Mocha and Jest).
- Implement modals, forms with schemas of validation, fetch information with API Rest and real-time update with Firebase.
- Component status management with Redux-Thunks and React Context and management lifecycle with hooks.
- Use of Micro-frontend architecture to load different react applications on demand and management of custom UI-Kit for component styling and UI-Sdk for reuse logic across microfrontends.

- Creation of multi-platform app with React Native and React to be used in desktop and Android using higher-order components to reuse logic to be used on different platform views. Webpack was customized to build web app and android compilations.
- Management endpoint to new requests for business logic in Express server dockerized. Middlewares for authorization, validation and sanitation schemas, fetch data from Redis, MySQL or Firebase, transform data and retrieve data to web app.
- Configuration of API Gateway, auto-prune version, scheduling with Event Bridge, Lambdas dockerized (using languages as Python, Java, Js/Ts) and optimization of SQL queries in order to be able to perform large data loads.
- Implementation of CD/CI from Github Actions for deployment on AWS and integrations with SonarQube on Github pull request for ensure code quality.

EDUCATION AND TRAINING

SPRINGER NATURE PUBLICATION (CONV-SETR) Springer Nature

The Subthalamic Nucleus and Substantia Nigra have an important role in the treatment of Parkinson's Disease (PD); however, they are difficult to identify on magnetic resonance imaging (MRI). We present a pipeline methodology that allows autonomous segmentation of both structures, based on MRI T2-weighted images and Deep Learning techniques. Three segmentation architectures were compared: CLCI-Net, 3D U-Net and Conv-SeTr. The proposed transformer-based model segmented the volumes of interest with a DICE coefficient of 0.81 and an AVD of 0.06, which outperformed the other architectures.

Website https://link.springer.com/chapter/10.1007/978-3-031-45642-8_36#Abs1 |

Field of study Inter-disciplinary programmes and qualifications involving health and welfare |

Thesis Subthalamic Nucleus and Substantia Nigra Automatic Segmentation Using Convolutional Transformers

14 JAN 2024

MACHINE LEARNING IN PYTHON WITH SCIKIT-LEARN (INRIA) France Université Numérique

Website <https://www.fun-mooc.fr/en/>

Link <https://openbadgefacy.com/v1/assertion/43b30c1284a31526d0d9ea846244e771eb66381e>

4 JUL 2022 – 26 AUG 2022 Geneva, Switzerland

SUMER STUDENT CERN

- Technologies used: Python, Html2Rest, ReadTheDocs, Github Actions (on-premise).
- Extracting raw content of legacy documentation from HTML files to reStructuredText files.
- Creation of workflow in GitHub Actions for automating deployment new changes to documentation content.
- Created web server with NGINX for accessing new static documentation files documentation and switch between versions.

Website <https://home.cern/>

Link <https://drive.google.com/file/d/1o9XIYD6C6Z7If6kDLsNTm5aZff-oRdvX/view>

2 JUN 2017 – 20 AUG 2022 Guayaquil, Ecuador

BACHELOR IN COMPUTER SCIENCE ESPOL

We present a pipeline methodology that allows autonomous segmentation of both structures, based on MRI T2-weighted images and Deep Learning techniques. Three segmentation architectures were compared: CLCI-Net, 3D U-Net and Conv-SeTr.

Website <https://www.espol.edu.ec/es> |

Thesis Subthalamic Nucleus and Substantia Nigra automatic segmentation using convolutional segmentation transformers (Conv-SeTr)

LANGUAGE SKILLS

Mother tongue(s): **SPANISH**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	B2	C1	B2	B2	B2

● DIGITAL SKILLS

DevOps

Git | Github Actions | AWS | GitLab Runners

Programming Languages

Java | JavaScript | Typescript | Python | C | C#

Machile Learning

Sklearn | Tensorflow 2 | Matplotlib | Pytorch | Seaborn

FullStack

Express | FastAPI | Scss | React | Astro | Vue | Remix.js | Flutter

Software Engineering

Data structures | UML Diagrams | Object-oriented programming (OOP) | Requirements Engineering

● ADDITIONAL INFORMATION

VOLUNTEERING

Guayaquil

TAWS Member Research Group of Web, Mobile and Data Science Technologies at ESPOL. Participation in the organization of WiDS (Women in Data Science) on 2020, 2021, and 2022.

Guayaquil

Teacher Assistant

- Worked as a teacher assistant in Object Oriented Programming course.
- Design and review partial tests, exams and projects for students.
- Give assistant ships to students to clarify their doubts on extra course parallel to main course.

PROJECTS

Timetable Generator Web page where ESPOL university students select the subjects and parallels, to show you all the valid combinations where you can register. To visualize visit the [page](#).

Tech used: State Machine, Github Actions (to deploy Lambda), Lambda functions, Serverless, Firebase database, React, Realtime updates from Firebase

Budget Calculator In this web app you can create budget to define your expenses and incomes as unique events or recurrent events as you usually create events for a calendar, in order to plan your budget through slice of time that you can define. To visualize visit the [page](#).

Tech used: Typescript, React, Firebase, Highcharts, React-Router-Dom.

Personal Website A website to show my personal projects and information about me. The website have section as personal projects, skills set, experience and about me. To visit the page clic [here](#).

Tech used: Astro (React and Markdown), Sass, Typescript.