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José Antonio Zamudio Amaya

Date of birth: 25/01/2000 | **Nationality:** Spanish | **Email address:** contact@jzamudio.com | **Website:** https://jzamudio.com

ABOUT ME

Software Engineer, R&D (AI - ML - IT) & Fullstack Developer

WORK EXPERIENCE

15/02/2023 – CURRENT Sevilla, Spain

ML RESEARCHER & FULLSTACK DEVELOPER PABLO DE OLAVIDE UNIVERSITY

Currently, my research focuses on developing complex metaheuristic algorithms for real-world optimisation problems, with special emphasis on graph-based scenarios such as social networks and 5G bandwidth connections. I use Java and Python to create innovative integer linear programming solvers and devise new greedy, GRASP, heuristic and genetic algorithms.

Business or Sector Professional, scientific and technical activities |

Department Department of Quantitative Mathematical Methods | **Address** Ctra. de Utrera, 1, 41013, Sevilla, Spain |

Email jazamama@upo.es

01/01/2022 – CURRENT Seville, Spain

IT RESEARCHER & FULLSTACK DEVELOPER UNIVERSITY OF SEVILLE

I conducted research focused on software product lines and highly configurable systems. I explored various approaches and techniques to address challenges in these areas. The goal of my research was to improve the flexibility, adaptability and scalability of software systems by linking theoretical concepts with real applications. I was actively involved in chatbot research, where we focused on identifying the main challenges associated with the automatic generation of chatbots.

Business or Sector Professional, scientific and technical activities |

Department Department of Computer Languages and Systems |

Address Av. de la Reina Mercedes, 41012 , Seville, Spain | **Email** jzamudio@us.es

EDUCATION AND TRAINING

15/09/2022 – 15/06/2023 Seville, Spain

MASTER IN SOFTWARE ENGINEERING: CLOUD, DATA AND IT MANAGEMENT University of Seville

My dissertation deals with the reuse of domain-specific information, integrating user intent, natural language processing agents and other features into chatbots. This practical approach reduces development time and ensures a chatbot tailored to the specific needs of the domain, improving effectiveness and efficiency.

Address Av. de la Reina Mercedes, 41012, Seville, Spain | **Website** https://masteroficial.us.es/mis/ |

Level in EQF EQF level 7 | **Type of credits** ECTS | **Number of credits** 60 |

Thesis Optimising the Generation of Chatbots Using Product Line Techniques

15/09/2018 – 15/06/2022 Seville, Spain

COMPUTER ENGINEERING - SOFTWARE ENGINEERING (IN ENGLISH) University of Seville

My dissertation sought to help users automatically generate, test and deploy domain-specific websites. The tool addresses domain information in the web generation process and applies software product line engineering techniques. The tool offers an intuitive interface for feature selection and uses an analysis engine to validate configurations. It then automatically generates websites based on plugins, themes and content.

Address Av. de la Reina Mercedes, 41012, Seville, Spain | **Website** https://www.informatica.us.es/ |

Level in EQF EQF level 6 | **Type of credits** ECTS | **Number of credits** 240 |

Thesis Automatic Website Construction Using Software Product Line Techniques

LANGUAGE SKILLS

Mother tongue(s): **SPANISH**

Other language(s):

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

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

DIGITAL SKILLS

Programming Languages

Java | JavaScript | Python | PHP | SQL / NoSQL

Research

Software Product Lines | Data Mining | Highly Configurable Systems | LowCode / NoCode | Chatbots | NLP

Frameworks

Node.js | React.js | FastAPI | Flask | Laravel

DevOps

Actions | Docker | SonarQ | Travis

ADDITIONAL INFORMATION

HONOURS AND AWARDS

19/07/2023

Master's Thesis Distinction with Honors – University of Seville

01/07/2022

Bachelor's Thesis Distinction with Honors – University of Seville

PUBLICATIONS

Optimization of Chatbots Generation Using Product Line Techniques – 2023

Chatbots are increasingly popular tools in many industries due to their ability to automate customer interactions and decrease workload. However, there is currently no practical way to reuse domain information to streamline the development of chatbots. To address this problem, in this paper we present a solution to optimize chatbot generation by reusing domain artifacts and applying product line engineering techniques. To this end, we propose a tool that allows to easily reuse the most relevant information in the domain, such as user intentions, natural language processing agents and other features described in the article to integrate them into chatbots.

(paper is accepted, pending publication)

Analysis Operations On The Run: Beyond Static Feature Model Analysis in Constraint-based Recommender Systems

– 2023
The development and maintenance of feature models is often an error-prone activity requiring different types of analysis operations that help developers to restore required feature model properties. Fulfilling such properties helps to assure compliance between feature model and corresponding domain variability properties and - at the same time - helps to increase feature model maintainability. In this paper, we propose a set of additional analysis operations that provide insights regarding potential impacts of applying feature models in constraint-based reasoning scenarios where feature models are used to define user preference spaces. In this context, our proposed analysis operations provide a.o. insights into aspects such as the feature restrictiveness and product accessibility. We analyze usage scenarios of the proposed metrics on the basis of a digital camera feature model.

(paper is accepted, pending publication)

Prototyping for the Automatic Generation, Testing and Deployment of WordPress Websites Using Software Product Lines (WebSPL)

– 2022
Software Product Lines propose solutions, methods and techniques for the production and construction of software products that share characteristics while maintaining certain differences between them. An important part of the SPL paradigm is to define a model that represents all possible products within the same domain. For this, we use feature models, which represent the information of all possible products within an SPL respecting constraints and relationships between features. To date, the product line community has proposed multiple techniques for the automatic analysis of models, or specific languages for their representation (e.g., Universal Variability Language) and tools for their automatic analysis such as FaMa or FeatureIDE among others. In this article we present WebSPL, an automatic configurator that implements a software product line of WordPress sites using a feature model. To do so, the tool delegates to FLAMA, a feature model analysis tool for the Python ecosystem, the validation, and automatically deploys the websites taking into account domain information.