JUAN MARCELO GUTIERREZ CARBALLO

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RESEARCH INTERESTS

I am focused on advancing adaptable software architectures within the field of software engineering. My research emphasizes designing solutions that dynamically address evolving requirements, allowing systems to adapt seamlessly to changes in security, functionality, and other critical areas. By leveraging state-machine-driven methods, my work seeks to reduce architectural complexity by managing adaptation and other concerns separately from core application logic.

I am excited to contribute to research in software engineering that explores the intersection of adaptability and resilient system design. My background positions me to effectively support projects aimed at creating robust, adaptive software solutions that respond to complex, real-world challenges.

EDUCATION

Texas Tech University 01/2023 - Present

Ph.D. in Computer Science, Advised by Prof. Michael Shin

- Cumulative GPA: 4.0

West Texas A&M University 08/2014 – 05/ 2018

B.S. in Computer Science

- Graduated with honors

SKILLS

- ***Programming Languages:*** *Assembler language, C, C++ Java, JavaScript, Python, SQL*
- ***Libraries, Frameworks & Paradigms:*** *Django, Node.js, jQuery*
- ***Database and Messaging:*** *MySQL, Microsoft SQL Server, Firebase, SQLite*
- ***Tools and Source Controls:*** *Git, Docker, Jira*

EXPERIENCE

Research Support Assistant, Beihang University Beijing, China, 2019 – 2021

- Explored the impact of GNU radio as a development toolkit for Software Defined Radio (SDR) ground stations.
- Supported research on the design of a micro-satellite ground station applying SDR as a concept to reduce hardware costs in the design.

Full Stack Developer, TOGABOL S.R.L. Santa Cruz, Bolivia, 07/2018 – 07/2019

- Developed and implemented new features on both the frontend and backend with a focus on security best practices.
- Wrote comprehensive unit tests to ensure code quality and reliability, with particular attention to identifying and resolving security vulnerabilities.

Math Lab Tutor, West Texas A&M University Canyon, Texas, 08/2016-05/2018

- Tutored Undergraduate Students in the Computer Science Department for all the classes offered by the Mathematics Department, with varying levels of difficulty.

PUBLICATIONS

Design of Secure Adaptable Connectors and State Machines for Software Architectures

Communications in Computer and Information Science (CCIS) under review – 11/ 2024

Juan Marcelo Gutierrez Carballo, Michael Shin, Hassan Gomaa

A Software Product Line Approach for Design of Secure Software Architectural Patterns with Secure Connectors

Journal of Software: practice and experience under review - 09/ 2024

Michael Shin, Hassan Gomaa, Taeghyun Kang, **Juan Marcelo Gutierrez Carballo**

Design of Adaptable and Secure Connectors for Software Architectures
Proceedings of the 19th International Conference on Software Technologies (ICSOFT 2024) — 07/ 2024
Juan Marcelo Gutierrez Carballo, Michael Shin, Hassan Gomaa

TEACHING ASSISTANTSHIP

TTU CS5384 *Logic for Computer Scientists*	Fall 2024
TTU CS5376 *Communication Networks*	Fall 2024
TTU CS5373 *Software Modeling and Architecture*	Summer 2024
TTU CS6378 *Software Security*	Spring 2024
TTU CS5332 *Software Engineering: Software Analytics*	Fall 2023
TTU CS5341 *Pattern Recognition*	Summer 2023
TTU CS1412 *Programming Principles*	Summer 2023
TTU CS4366 *Senior Capstone project*	Spring 2023

HONORS AND AWARDS

CS Ph.D. Fellowship, Texas Tech	Since 01/ 2023
MASTA Scholarship, Beihang University	09/2019-08/2020
Good Neighbor Scholarship, West Texas A&M University	08/2014-05/2018
Dean's List, West Texas A&M University	2014-2018