Ricardo Reyna

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EXECUTIVE SUMMARY

As a dedicated Quality Assurance Engineer (QAE), my foremost commitment lies in continuously seeking innovative methods to meticulously validate the functionality of software systems. My objective extends beyond mere validation: I aim to elevate the performance of these systems and enhance the holistic user experience (UX). The pursuit of excellence in software quality assurance involves an ongoing journey of exploration and adaptation to ensure that the end product not only meets but exceeds user expectations. My strengths include:

- **Bulldog tenacity, Outstanding People Skills, Creative thinker, Analytical and discerning**, **Resilient and resourceful**, **poised under pressure**, **Goal focused oriented.**
- **Technical Skills:**
  - **Programming & Scripting:**
    Java, Python, C#, JavaScript, SQL, .NET, ADO.NET
  - **Test Automation & QA:**
    Selenium WebDriver, TestNG, Cucumber (BDD), Test Automation Framework Design (POM, Hybrid), API Testing (Postman, REST Assured), UI & Functional Testing, Regression Testing, Self-healing Automation
  - **AI-Driven Testing & Machine Learning:**
    AI-driven Test Case Generation, Generative AI for Testing (LLMs), Prompt Engineering, Natural Language Processing (NLP), Artificial Neural Networks, Model Evaluation & Validation
  - **Computer Vision:**
    YOLO, Detectron2, OpenCV, TensorFlow, Image Recognition & Object Detection, Data Annotation & Labeling
  - **DevOps & Tools:**
    Git, Jenkins, CI/CD Pipelines, Atlassian Suite (Jira, Confluence), JetBrains IDEs, Google Colab
  - **Cloud & Platforms:**
    AWS (EC2, S3, Lambda), GCP, Adobe Experience Manager (AEM)
  - **Database Technologies:**
    Database Management, Data Analysis & Visualization
  - **Methodologies:**
    Agile/Scrum, Software Development Life Cycle (SDLC), Software Test Life Cycle (STLC), Risk-based Testing, Test Strategy & Planning
- **Relevant Courses:** Requirements Engineering, Software System Design, Systems Analysis and Design, Database Design Concepts, Patterns, Software Systems Architecture, Enterprise Integration, Applied Human Computer Interaction, Software Construction, Web Security and Privacy, Software Project Management, Software Engineering Studio.
- **Language Skills:** Bilingual (English and Spanish)

WORK EXPERIENCE

Instructor (Half Time)
Texas State University- Department of Information Systems and Analytics, San Marcos, TX **August 2025 – Present**

- Taught undergraduate courses ISAN 1323 – Microcomputer Applications and ISAN 1325 – Microcomputer Applications for Business at Texas State University.
- Delivered instruction on Microsoft Office applications, including Word, Excel, PowerPoint, and Access.
- Developed and implemented course materials aligned with business and technology learning objectives.
- Designed hands-on assignments using real-world business scenarios to enhance practical skills.
- Integrated Microsoft Copilot (AI tools) into coursework to improve student productivity and understanding of emerging technologies.
- Created structured lesson plans covering document creation, data analysis, database management, and presentations.
- Taught Excel concepts including formulas, functions, pivot tables, and data visualization techniques.
- Demonstrated practical applications of spreadsheets for business decision-making and analysis.
- Designed and administered assessments to evaluate student proficiency in Microsoft Office tools.
- Provided individualized support and mentoring to improve student performance and engagement.
- Fostered an interactive learning environment that encouraged collaboration and critical thinking.
- Monitored student progress and delivered constructive, timely feedback on assignments.
- Utilized learning management systems (e.g., Canvas, SIMnet) to manage coursework, grading, and communication.
- Simplified complex technical concepts into accessible, easy-to-understand instruction.
- Leveraged digital tools and technology to enhance teaching effectiveness and student learning outcomes.

Senior QA Automation Engineer **April 2021 – Present**
Dun & Bradstreet. Austin, TX

- Currently utilizing Computer Vision (CV) techniques to detect UI components for testing purposes. This involves creating test cases based on detected components and using these for regression testing.
- Applied computer vision techniques to validate UI components and detect visual regressions across web and mobile applications.

- Leveraged generative AI tools to automate exploratory testing and dynamically create edge-case scenarios.
- Work closely with product managers, architect, developers, QA Engineers on the product features to ensure.
- Comprehensive test automation coverage is achieved for our IQ and Visualize application.
- Developed and executed comprehensive testing strategies for IQ and Visualize, ensuring the delivery of high-quality software within project timelines.
- Led a team of QA engineers in planning, designing, and executing test cases, resulting in a high improvement in overall test coverage.
- Spearheaded the implementation of automated testing processes using Selenium WebDriver in Java, resulting in a 80 reduction in manual testing efforts.
- Collaborated with development teams to integrate automated testing into the continuous integration/continuous deployment (CI/CD) pipeline, enhancing overall efficiency.
- Established and enforced QA best practices, coding standards, and testing methodologies to maintain consistency and quality across all software projects.
- Conducted regular training sessions for team members on the latest testing tools, technologies, and industry best practices.
- Played a key role in defect analysis and resolution, working closely with developers to identify root causes and implement corrective actions.
- Implemented a robust defect tracking system, reducing the average resolution time by high percentage.
- Collaborated with cross-functional teams, including development, product management, and customer support, to ensure a holistic approach to software quality.
- Acted as a liaison between QA and development teams, facilitating effective communication and knowledge sharing.
- Implemented agile testing methodologies, contributing to faster delivery cycles and improved responsiveness to changing project requirements.
- Ensured compliance with industry standards and regulatory requirements by implementing and maintaining rigorous testing processes.
- Mentoring other QA Engineers (QAEs) to enhance their skills and knowledge in both manual and automation testing.

Research Experience

Systems Engineering Department, Colorado State University **January 2020 – May 2025**

Supervisor: Dr. Steve Simske

- Developed a CV-driven testing framework leveraging YOLOv8 and Detectron2 to automate UI component detection across web and mobile platforms for enhanced QA processes.
- Integrated Large Language Models (LLMs), including ChatGPT, to enrich functional test cases with descriptive steps, improving test clarity and onboarding documentation.
- Created and annotated a custom dataset of over 2,000 images across 27 UI component classes to support supervised model training and test case generation.
- Evaluated model performance using precision, recall, F1-score, entropy, and ANOVA analysis to determine the effectiveness and variability of manual, automation, and CV-driven test design approaches.
- Demonstrated that the CV-driven approach reduced test case generation time by over 60%, while increasing component detection coverage and improving test diversity.
- Conducted exploratory testing with heuristics to enhance negative scenario test case design and UI defect detection such as misalignment, responsiveness, and unexpected UI behaviors.
- Proposed innovative applications of the CV-driven framework across regression testing, documentation generation, and future adaptation for VR/AR system testing.

QA Automation Engineer **April 2019 – Mar 2021**

Dun & Bradstreet. Austin, TX

- Reviewing quality specifications and technical design documents to provide timely and meaningful feedback.
- Creating detailed, comprehensive and well-structured test plans and test cases.
- Estimating, prioritizing, planning and coordinating quality testing activities.
- Building an Automation framework for D&B projects using Selenium Web driver.
- Building monitoring scripts in Java to verify if the servers are up or down then sending an email notification to the team.

Software Test Engineer **September 2014 - February 2019**

General Motors (IT Innovation Center) Austin, TX

- Extensive experience in both manual and automation testing.
- Developed comprehensive test plans for various projects ensuring thorough coverage of all functionalities.
- Utilized Selenium WebDriver for automation testing which significantly reduced manual efforts.
- Conducted detailed defect analysis to identify root causes and implemented corrective actions promptly.
- Collaborated closely with development teams to ensure seamless integration of automated tests into CI/CD pipelines.
- Played a key role in improving overall software quality through rigorous testing methodologies.
- Mentoring other QA Engineers (QAEs) to enhance their skills and knowledge in both manual and automation testing.

EDUCATION

Colorado State University, Fort Collins, CO **May 2025**
Ph.D. – Systems Engineering.
Dissertation: Improving Test Case Diversity for Functional Testing in Computer Vision-Based Systems
Courses: Overview of Systems Engineering Processes, Cybersecurity Awareness for Systems Engineers, Analytics in Systems Engineering, Intellectual Property, and Invention Systems.

Johns Hopkins University, Baltimore, MD **December 2018**
Courses: Introduction to Systems Engineering and Management Systems Projects.

The Pennsylvania State University, Malvern, PA **December 2017**
M.E. - Software Engineering.

Texas State University, San Marcos, TX **Summer 2014**
B.B.A. - Computer Information Systems.

Northwest Vista College, San Antonio, TX **May 2012**
A.A. - with a concentration in Business Administration.

PUBLICATIONS & APPEARANCES

Journal – Academy of Management. **Jul 2026**
- "Preparing Job Posting Data for Management Research: A Reproducible Pipeline for Job Analytics"

Appearance – Annual Student Poster Competition, Penn State University **Feb 2026**
- "Preparing Job Posting Data for Management Research"

Dissertation – Mountain Scholar **May 2025**
- **"**Improving Test Case Diversity For Functional Testing In Computer Vision-Based Systems**"**

Journal – Archiving 2022, **May 2022**
- "How to Generate and Import Functional Test Cases into a Project Management Software System using Natural Language Processing" URL - https://library.imaging.org/archiving/articles/19/1/9

Journal – INCOSE WSRC. **Sep 2024**
- "Enhancing Onboarding in QA Teams – Object Detection Approach For Test Case Generation In Exploratory Testing"

REVIEWING & CONSULTING

Journal – Journal of Web Engineering, Online **May 2023**
- "Joint Representation of Entities and Relations via Graph Attention Networks for Explainable Recommendations" Authors: Rima Boughareb, Hassina Seridi, and Samia Beldjoudi

Journal – Journal of Web Engineering, Online **August 2023**
- "Embedding a Microblog Context in Ephemeral Queries for Document Retrieval" Authors: Shilpa Sethi

ORGANIZATIONS

-The National Society of Leadership and Success
-Phi Theta Kappa Honor Society
-AITP (Association of Information Technology Professionals) Texas State University
-INCOSE (Colorado State University)