JOSEPH G. COLCA

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Professional Overview

Software engineer with six years of forensic laboratory, quality assurance, and laboratory information management systems (LIMS) experience. Utilizes Lean Six Sigma (LSS) principles to develop, implement, oversee, and improve projects.

Projects

DC Ride   dcride.herokuapp.com   November 2018
An application for a driverless taxi company. Customers request a taxi and the closest one is dispatched. Customers are provided estimates for taxi arrival and trip duration. Admins manage taxis and view transactions. The taxis are "driven" by an admin account. Uses HTML, CSS, Bootstrap, JavaScript, Google Maps API, YouTube API, jQuery, Node.js (& Express, Session, Mustache, Cors, Body-Parser, bcrypt, Sequelize, Socket.io, and Sequelize-Socket.io packages) and a PostgreSQL database hosted by ElephantSQL.

Test Creator   test-creator.surge.sh   October 2018
An application for teachers to create multiple-choice tests. Teachers can send codes to students that allow the students to take a specific test. Upon student submission, the test is graded, and the student is shown the score. Uses HTML, CSS, JavaScript, and a Firebase database.

Qualifications and Skills

- Languages: HTML, CSS, JavaScript, PHP, Python, C++, Basic
- Databases: DynamoDB, MongoDB, PostgreSQL, Oracle, SQL, Firebase, Access
- Libraries and Other: AWS, jQuery, Node.js, Express, Express-Session, Express-Mustache, Body-Parser, Cors, Sequelize, Socket.io, Sequelize-Socket.io, bcrypt, React.js, Redux, JSON, Bootstrap, SASS
- Educated in General, Organic, Analytical, and Physical Chemistry, General Biology, Human Anatomy & Physiology, Immunology, Genetics, Forensic Biochemistry, Environmental Science, Statistics, and Calculus

Accomplishments

- Nominated for Houston Police Department Civilian Employee of the Year award
- Elected LIMS committee chairman and appointed Quality Assurance committee member
- Amplified productivity 150% after spearheading simultaneous deployment of LIMS and digital evidence management database (DEMD) projects
- Directed first firearms section to automatically generate worksheets and reports in LIMS and DEMD
- Programmed LIMS and DEMD resulting in significant costs savings
- Formulated solutions to complex problems regarding LIMS, DEMD, and laboratory accreditation
- Built electronic database for standard ammunition file increasing search effectiveness
- Led a team of 6 responsible for formalizing chain of custody procedures, report format, and report design across laboratory sections achieving increased evidence transfer efficiency and providing customers with identifiable and comprehensible reports
- Proliferated laboratory communication and boosted morale after instituting unified policies enhancing oversight, transparency, and quality while maintaining efficiency
- Developed new fire debris analysis examination method and tested proprietary software intended to determine classifications of ignitable liquids employed in arson cases

Employment History

Criminalist   Houston Police Department Crime Laboratory, Houston, TX   January 2008 – March 2014

Slashed backlog from 350+ to 37 open case requests after improving employee work schedule. Eliminated 3 employee-years of backlog in 1 year resulting in accelerated case turnaround times of less than 30-days. Undertook quality management system (QMS) projects encompassing internal audits, documentation control, SOP writing and revision, measurement traceability, and new technology implementation. Mentored staff in LIMS, DEMD, and forensic ammunition catalog databases and instructed 6 employees in various AFTE training manual modules. Determined firearm functionality, ascertained fired evidence origin and possible firearm manufacturer, performed serial number restorations, authored analytical reports, scrutinized reports for technical and administrative errors, and presented expert witness testimony.

Research Assistant   National Center for Forensic Science, Orlando, FL   February 2007 – May 2007

Executed various forensic fire debris analysis roles including research, experimentation, statistical analysis, method validation, instrument calibration, and instrument quality assurance. Partnered with Florida State Fire Marshal's Bureau of Forensic Fire and Explosive Analysis. Managed Ignitable Liquid Reference Collection and Database governed by the Technical Working Group on Fire and Explosions (TWGFEX). Achieved research objectives culminating in peer reviewed journal research article.

Stay at Home Father   Colca Residence, Cypress, TX   March 2014 – September 2018

Education

DigitalCrafts, Immersive Coding Bootcamp — Houston, TX   2019
17-week intensive, full-time accelerated full-stack software development learning program

Bachelor of Science Degree, University of Central Florida — Orlando, Florida   2007
Major: Forensic Science
Minor: Chemistry

Associate in Arts Degree, Central Florida Community College — Ocala, Florida   2003
Scholarship Athlete: Baseball, Team Captain

Certifications, Professional Affiliations, and Publications

Lean Six Sigma Green Belt Certification
American Board of Criminalistics Fellow Certification

Association of Firearm and Tool Mark Examiners Provisional Member
American Chemical Society Regular Member

Authored "Testing Different Substrates to Reduce Hollow Point Expansion when Bullets Are Fired into a Water Tank" AFTE Journal, 41:1, pp. 40-48. 2009.
Co-Authored "Ignitable Liquid Classification and Identification Using the Summed-Ion Mass Spectrum" Instrumentation Science & Technology, 36:4, pp. 375-393. 2007.