Juancarlos Sandoval

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EDUCATION

Graduated

Bachelor of Science in Computer Science | California State University, Bakersfield — May 2026

Bachelor of Science in Biological Science | University of California, Irvine — Jun. 2013

TECHNICAL SKILLS

AI & ML Tools: Claude Code, ChatGPT, scikit-learn, Pandas, NumPy, Matplotlib, Seaborn, MATLAB
Data & Analytics: Statistical Analysis, Data Cleaning, Data Visualization, Excel, Google Sheets
Languages: Python, Java, C, C++, JavaScript, SQL
Developer Tools: VS Code, IntelliJ, Android Studio
Cloud & Infra: AWS, Supabase, PostgreSQL (RLS, Edge Functions), Linux, GitHub

EXPERIENCE

Research Assistant | California State University, Bakersfield - Computer Perception Lab — Jan. 2026 - Present

- Conducting qualitative analysis on AI-assisted learning using survey data from 78 students across 3 CS course sections, each surveyed at 3 longitudinal time points to track shifts in learning outcomes.
- Developed and iteratively refined a structured codebook to categorize teaching preferences, user attitudes, cognitive impacts, and barriers.
- Applied thematic coding with participant-level tracking to distinguish instructional mechanisms (e.g., scaffolding) from reported learning outcomes (e.g., critical thinking, over-reliance).
- Co-authoring a first-author manuscript comparing human-developed and open-source codebooks for AI tutoring research; targeting submission May 2026.

Research Assistant | California State University, Bakersfield - XR/VR Lab — Jan. 2026 - Present

- Investigated co-location techniques in VR using MeXanimaTor, a lab-developed platform built in Unity, to enable synchronized group teleportation across shared virtual environments.
- Designed and conducted experimental test sessions to identify causes of positional drift during multi-user VR interactions and evaluate spatial anchor solutions.
- Leveraged AI tools to assist with literature review, experimental documentation, and iterative analysis of co-location findings.
- Reviewed XR/VR research literature and documented experimental findings to support iterative improvements to the co-location system.

Computer Science Tutor | California State University, Bakersfield — Jan. 2026 - Present

- Provide weekly one-on-one tutoring sessions to 8-10 undergraduate students in Data Structures, Discrete Mathematics, and Programming.
- Identify student knowledge gaps and tailor explanations to reinforce core CS concepts through guided problem-solving.

Project Manager | Kaiser Permanente — Mar. 2017 - Jun. 2022

- Designed and administered pre/post behavioral surveys across 3 community health initiatives, collecting data on exercise frequency, nutrition habits, and health behavior changes among K-12 students and parents.
- Analyzed participant survey data in Excel to measure program impact; reported findings to leadership to guide future planning.
- Led Nutrition to Grow On (CDC) program across 3-5 schools annually for 5+ years, reaching 70-90 students per school and tracking year-over-year behavioral outcomes.
- Designed and facilitated a suite of youth academic programs including math tutoring, homework assistance, high school academic coaching, and a Work Preparatory Program (7-week curriculum + summer internship), serving consistent student cohorts from elementary through high school.
- Built and maintained partnerships with Libraries, Planned Parenthood, Parks & Recreation, and school districts to coordinate program delivery and expand community reach.

Previous Titles: Learning Specialist, Assistance Program Coordinator, College Intern — *Oct. 2010 - Mar. 2017*

HACKATHONS

Plot-A-Thon | *CSU Channel Islands, CA* — Feb. 2026

- Won **Best Overall**, **Best Data Analysis**, and **Best Data Communication** out of ~21 competing teams.
- Analyzed a 1,467-respondent gaming survey (114 attributes) across 4 platforms; cleaned inconsistencies and standardized datatypes across boolean and categorical variables.
- Uncovered that active communicators discover music at 1.8x the rate of silent players (22.4% vs. 12.3%), suggesting multiplayer games as a high-ROI advertising channel reaching 600M+ potential listeners.
- Cleaned and preprocessed multi-type survey data using Pandas and NumPy; visualized findings with Matplotlib and Seaborn to craft an accessibility-compliant infographic and video presentation.

PROJECTS

Travyl | *PostgreSQL, Supabase, FastAPI, AWS Bedrock (Claude), React Native, Next.js* — Sept. 2025 - Present

- Designed and owned the full PostgreSQL schema across 10+ interrelated tables including trips, activities, collaborators, itinerary edits, and user travel profiles, with FK constraints, check constraints, and cascading deletes.

- Implemented Row Level Security (RLS) on all 10 tables; wrote SECURITY DEFINER functions to handle complex multi-table authorization (join-via-link, collaborator access) while resolving RLS infinite recursion.
- Built a role-based access system (viewer/editor/owner) with token-based invite workflow and full audit trail via itinerary_edits and trip_change_log tables.
- Optimized query performance with targeted indexes on high-traffic columns and a GIN index on JSONB fields; backend uses AWS Bedrock (Claude) to parse natural language trip requests into structured itineraries.

Anime Database | *SQL, JavaScript, HTML* May 2025

- Designed a relational database for users, characters, and match data with an optimized schema for efficient queries.
- Implemented SQL queries, stored procedures, and triggers for character insertion, voting operations, and entity relationships.
- Built a dynamic, data-driven web interface connected to a backend database.

Poisonous Mushroom Classification | *Python, Pandas, NumPy, scikit-learn* Dec. 2025

- Achieved 99.93% cross-validation accuracy using KNN on the UCI Mushroom Dataset (60,000+ samples) to classify poisonous vs. edible mushrooms.
- Preprocessed data using missing-value-based feature selection, normalization, PCA, and categorical association analysis.
- Trained and compared KNN, Random Forest, and AdaBoost using 5-fold cross-validation, ROC-AUC, and confusion matrices.