

KEVIN GONZALEZ SANCHEZ

ENVIRONMENTAL ENGINEERING

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Portfolio: www.kevingonzalez.com

EDUCATION

B.S. Environmental Engineering

(Expected August 2026)

Florida International University. Miami, FL

Relevant Coursework: Water/ Wastewater Treatment · Fluid Mechanics · Water Resources & Hydraulics · Solid & Hazardous Waste Management · Environmental Organic Chemistry · Air Pollution · Environmental Compliance & Data Analysis.

PROJECTS

Advanced Wastewater Treatment System for Direct Potable Reuse

January 2026 - April 2026

Capstone Design Project | Florida International University

- Engineered a full-scale multi-barrier DPR system - integrating membrane filtration, reverse osmosis, and UV-based advanced oxidation - sized for a 40 MGD treatment facility.
- Conducted process sizing, mass balance analysis, and hydraulic flow optimization, achieving a modeled contaminant removal exceeding EPA and state DPR regulatory thresholds.
- Evaluated pathogen, nutrient, and trace contaminant removal (PFAS, NDMA) against conventional treatment limits, quantifying a projected 99.99% reduction in microbial indicators.
- Delivered a Process Flow Diagram (PFD) and full system architecture report aligned with FDEP and US-EPA potable reuse frameworks, suitable for regulatory submission.

PlantBot: IoT Soil Moisture Monitor System

June 2025

Independent Engineering Project

- Designed and deployed an end-to-end IoT system using ESP8266 NodeMCU and a calibrated LM393 soil moisture sensor to deliver real-time plant care alerts via Telegram Bot API.
- Engineered a custom 3D-printed enclosure and programmed embedded firmware in Arduino IDE, reducing unit cost by ~85% compared to commercial alternatives.
- Validated system reliability over a 30-day continuous deployment period with zero hardware failures; modular architecture allows scaling to multi-node environmental monitoring networks.

RESEARCH

Undergraduate Research - Bacteriophage Discovery & Genomics

FIU, 2025-2026

Florida International University | Department of Biological Sciences

- Discovered and characterized novel bacteriophages via environmental sampling, plaque isolation, TEM imaging, and genome sequencing.
- Annotated phage genomes and analyzed capsid protein conservation using BLASTp HHPRED, AlphaFold2, and ChimeraX.
- Performed comparative genomics - synteny analysis, functional annotation and phylogenetic clustering.

EXPERIENCE

Business Development Intern

June 2023 - August 2023

Yes Energy. Boulder, CO

- Supported lead generation across U.S. power markets (ISOs, RTOs), building understanding of utility-scale energy systems.
- Researched and proposed 3 internal AI/ML workflow applications to leadership, targeting data pipeline automation, outreach personalization and market segmentation, reducing estimated manual effort by 40%
- Analyzed datasets to identify trends and insights relevant to infrastructure and energy markets.

SKILLS

Software: ArcGIS, AutoCAD, ANSYS, EPANET, MATLAB, Python, Fusion 360, AlphaFold, HEC-RAS.

Analysis: CFD Modeling, Lifecycle Analysis (LCA), Energy modeling, Bioinformatics, Statistical regression.

Laboratory: Water & soil analysis, Environmental sampling, Flow measurement, Microbiology.

Systems: Arduino, ESP8266, Sensor integration, IoT design, Firmware, AI/ML applications.