

Cristian Alejandro Correa

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EDUCATION

North Park University – Chicago, IL

Expected Graduation: May 2027

Bachelor of Science in Mechanical Engineering – GPA: 3.8/4.0

- Relevant Coursework: Thermodynamics, Engineering Statics, Materials Science, Engineering Ethics
- Dean's List: Fall 2023 – Fall 2025 (5 Semesters)

ENGINEERING EXPERIENCE

Projects:

Static Strength vs. Dynamic Toughness of Cementitious Mortars

December 2025

- Investigated the relationship between matrix density, aggregate volume fraction, and hydration kinetics in high-performance vs. sand-diluted mortars.
- Engineered custom batches with varying water-to-binder ratios (0.36 vs. 0.49) and sieved aggregates to simulate high-strength industrial grouts.
- Performed Three-Point Bend Tests to determine static flexural strength (reaching 7.25 MPa) and Charpy Impact Tests to measure dynamic toughness.
- Analyzed failure modes including Intergranular Decohesion and the impact of the Interfacial Transition Zone (ITZ) on structural failure.

Static Analysis and Validation of a Warren Truss Bridge

December 2025

- Designed and 3D-modeled a structural Warren Bridge system using SolidWorks, utilizing the weldments tool to generate a structural square tube frame.
- Conducted a Static Simulation (FEA) by applying 1000N loads to multiple joints to identify internal forces and maximum deflection.
- Validated computational results through manual Method of Joints calculations, achieving high precision with error margins below 1% for primary member
- Analyzed stress distribution and displacement to confirm structural integrity, ensuring max stress (5.88 MPa) remained well within the material's elastic region (206.8 MPa yield strength).

Industry Skills:

Software/CAD: SolidWorks (Weldments, CSWA prep), AutoCAD, Finite Element Analysis (FEA), MATLAB (Fundamentals)

Engineering Analysis: Method of Joints, Thermodynamics, Structural Mechanics, Material Properties

Fabrication and Testing: Tensile & Impact Testing, Material Selection, Safety Protocols

SKILLS

Software: Microsoft Office (Excel, Word, PowerPoint, Outlook)

Languages: English & Spanish (Bilingual Proficiency)

WORK/PROFESSIONAL EXPERIENCE

Sales Manager, AutoZone

December 2023 – Present

- Improved store operational efficiency by 15% by redesigning inventory management and staff scheduling workflows.
- Mentored cross-functional teams in technical best practices, enhancing collaborative problem-solving for complex tasks.
- Used sales data to identify and resolve inventory discrepancies for high-demand parts, reducing 'out-of-stock' instances by 10%.

Cashier, Portillos

December 2022 – July 2023

- Managed high-volume customer transactions in a fast-paced environment, consistently meeting or exceeding targets for order processing speed
- Adhered to technical protocols and safety standards during task execution, maintaining zero deviations from specifications