

Alex Correa

Cambridge, MA

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EDUCATION

Harvard University, Cambridge, MA

Expected May 2029

Mechanical Engineering S.B. | Minor in Economics. GPA: 3.67/4.00

Relevant Coursework: Mechanical Systems, Engineering Thermodynamics, Computer-Aided Machine Design, Mechanics & Statistical Physics, Electromagnetism, Computational Thinking & Problem Solving

PROJECTS

Electricity-Free Diagnostic Centrifuge | AAKRUTI Engineering Competition

Fall 2026

- Developing a low-cost, fully mechanical diagnostic centrifuge on a four-person team; consulted Harvard tuberculosis researchers to identify accessibility, infrastructure, and ease-of-use constraints in settings without large clinical facilities.
- Leading design of the mechanical power system, evaluating mechanisms that convert repeated manual input into high-speed rotor motion and defining transmission requirements alongside slip-clutch and overspeed-safety concepts.

Harvard Undergraduate Robotics Club (HURC) | Chassis & Suspension Team

Fall 2026

- Designing chassis and suspension for a four-wheel Mars rover platform with independently motor-actuated wheel modules in a semi-swerve-drive configuration and a rear differential bar; produced initial sketches for base chassis and wheel-module interfaces.
- Researching and sketching preliminary concepts for a fully modular chassis architecture to simplify mounting, disassembly, and iteration as the arm, science, and electrical subteams integrate their systems.

Two-Bar Robot | **ES 51: Computer-Aided Machine Design** | Harvard University

Fall 2025

- Designed a competition-winning rear-wheel-drive robot in SolidWorks within an 11×11×11 in. constraint and performed component-level center-of-mass and static stability analysis, verifying a 36° tipping threshold against a 30° ramp requirement.
- Fabricated components using a lathe, vertical band saw, drill press, CNC mill, and 3D printing, iterating through multiple design revisions to improve structural durability, manufacturability, and competition performance.

Multiplayer Game Platform

Summer 2026

- Designed and shipped a room-code multiplayer platform consolidating 6+ social-deduction games — Avalon, Mafia, Secret Hitler, One Night Werewolf, Impostor, and others — into one Kahoot-style product for online and in-person play, with AI-assisted development.
- Tested and debugged game flows across repeated iterations, validating synchronized state, hidden-role information, and edge cases while adding hostless features such as automated voice prompts to improve the player experience.

EXPERIENCE

Formula SAE | Harvard Undergraduate Automotive Society – Cambridge, MA

2025–2026

- Revised and iterated SolidWorks CAD for pedal-box components and developed CAD for wheel-assembly components.
- Researched material and part specifications for manufacturing, compiling sourcing lists to support fabrication.

Masonry & Operations Assistant | JM Correa Construction LLC – Dallas, TX

2023–2025

- Supported residential and commercial masonry projects, including material preparation, power-tool operation, and site setup.
- Managed invoices, expense records, and job-cost documentation for small-business operations.
- Interpreted between Spanish-speaking workers and English-speaking contractors during meetings and job-site coordination.

LEADERSHIP

Co-Director of Outreach | Society of Hispanic Professional Engineers (SHPE)

2025–Present

- Lead corporate outreach and follow-up for Harvard SHPE, building relationships with companies to secure sponsorships, recruiting opportunities, and professional-development partnerships: contributing to \$12,000 in sponsorships.
- Help organize career-focused programming for engineering students, including industry information sessions, mentoring opportunities, resume reviews, and career-success support.

SKILLS

CAD & Engineering: SolidWorks, Onshape, Engineering Drawing, GD&T, Mechanism Design, Center-of-Mass Analysis, Design Trade Studies, Prototyping

Manufacturing: CNC Milling, Lathe, Drill Press, Vertical Band Saw, 3D Printing

Programming & Software: Microsoft Suite, Overleaf/LaTeX, Python, Arduino

Languages: Spanish (Fluent)