

William Castro

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EDUCATION

Boston University, College of Engineering

Master of Science in Mechanical Engineering

Late Entry Accelerated Program (LEAP)

Boston, MA

Candidate, December 2026

September 2024 - Present

University of Massachusetts Amherst, Isenberg School of Management

Bachelor of Business Administration in Operations and Information Management

Amherst, MA

Graduated, May 2023

- GPA 3.86; Dean's List All Semesters, Cum Laude Honors, Data Analytics Certificate

RESEARCH EXPERIENCE

Lubner Group, Boston University

Direct Air Capture of CO₂ – Laboratory Assistant

Boston, MA

May 2026 - Present

- Building hardware for the lab's planned 5,000-cycle degradation test of metal-organic frameworks (MOFs), porous materials that capture CO₂, where heating and cooling time per cycle sets how long the test takes
- Designed and CNC milled the Dynamic Gas System Chamber, an aluminum vacuum chamber, sizing the walls to maximize heat transfer and minimize thermal mass for faster cycling
- Waterjet cut the chamber lid, laser cut a custom nitrile gasket, and drilled and tapped two 1/8" NPT ports; the assembly held vacuum with no more than 2 mbar of pressure loss over 6 hours
- Sped up heating with a second furnace core of thicker nichrome wire, bench-tested to 90 °C in under a minute
- Redesigning furnace end holders to mount 120 mm fans that duct air through the glass tube for faster cooling
- Machined aluminum sample holders and supported ongoing material testing for the lab's carbon capture research

PROJECTS

PressMate Coffee Press

January 2026 - May 2026

- Designed the PressMate, a steel coffee press, with a 4-person team balancing a limited budget, safety, and customer use-case requirements
- Fabricated 5 mockups and 13 total steel prototypes through DVT, EVT, and PVT phases, using CNC and manual lathes, waterjet cutter, cast silicone, and wire EDM in a 22-step process for each prototype
- Held sealing and fit tolerances across all 13 builds, with every unit functioning correctly
- Established a document management system for drawings, process plans, SOPs, tooling, RASCI, risk management, cost model, and packaging; maintained all revisions through DVT, EVT, and PVT

Automated Circuit Printing

January 2026 - May 2026

- Developed an automated production process for 2 functional circuits with a 6-person team, integrating CNC milling of HDPE stock and robotic dispensing of silver conductive ink
- Modified and extended an existing Python control codebase to run new components and circuit layouts the original system did not support
- Calibrated UR5 robotic arm positioning through repeated testing to place components precisely and lay continuous ink traces through milled channels
- Designed and milled an HDPE tray to hold all added components in a fixed, repeatable position for the robot

Accumulator Cart for High Voltage Battery, Terrier Motorsports

November 2024 - February 2025

- Led a 4-person team in designing a hydraulic accumulator cart to safely remove a high-voltage battery from a racecar, prioritizing ease of use and adaptability to future battery designs
- Incorporated a deadman brake, electrical insulation, and an integrated battery charger into the design to protect operators and improve usability
- Designed new wheel brackets to fit the brakes, validating a 500 lb load capacity with SolidWorks FEA

WORK EXPERIENCE

Ernst & Young (EY)

Boston, MA

Client Serving Intern, Technology Risk Consulting

June 2022 - August 2022

- Completed SOX control testing for various clients, including change and access controls, to ensure compliance
- Documented audit walkthroughs and testing results to support audit readiness and adherence to standards
- Supported engagement teams with project planning and client deliverables

Launch Intern

June 2021 - August 2021

- Tested controls to ensure design and operating effectiveness
- Rotated between consulting, audit, and tax client-serving teams
- Worked with fellow interns on a capstone project to help solve a Tennessee labor problem

Miranda Bread

Marlborough, MA

Operations and Maintenance Coordinator

Summer 2017 - January 2023

- Maintained all company vehicles, including two Sprinter vans
- Handled day-to-day repairs and replacements of broken equipment to keep each bakery running
- Troubleshoot network, POS system, printer, and office computer issues across locations
- Managed inventory deliveries to store locations and tracked inventory across locations and a production plant
- Reconciled receipts for money transfer services worth over \$100,000 per shift
- Monitored store cleanliness and employee conduct across locations

SKILLS

Engineering Software: SolidWorks, Fusion 360, Onshape, COMSOL, FEA, Python, MATLAB

Data & Business Tools: SQL, R, JMP, Tableau, Power BI, VBA, SAP, Microsoft Excel

Manufacturing: CNC Mill, CNC Lathe, Manual Mill, Manual Lathe, Waterjet Cutter, Laser Cutter, 3D Printing, TIG Welding, Sand Casting, Soldering

Language: Conversational in Portuguese

LEADERSHIP & ACTIVITIES

Operations & Information Management Club, Association of Latino Professionals for America

Treasurer, Fundraising Chair

September 2019 - May 2023

- Managed club finances, including the bank and Venmo accounts, and created yearly budgets
- Organized fundraisers to make sure the club had the funds to operate
- Connected with recruiters, professionals, and alumni in the operations and information management field