

Tom Crowther

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SUMMARY

Detail-oriented Mechanical Engineer with hands-on experience in mechanical systems integration, prototyping, and cross-functional product development. Seeking to contribute to innovative product and technology development in a collaborative and enthusiastic team environment.

ENGINEERING EXPERIENCE

Sonos Inc. - Mechanical Design Engineer (3x 6-month Co-Ops) *July 2023 - December 2023, July 2024 - June 2025*

Technical Design

- Created CAD models and GD&T drawings to release 20 electrical components (flex PCBs and EMI shields) using NX.
- Engaged vendors and used NX (CAD) and GD&T to design molded, stamped, and electrical parts for mass production.
- Designed CNC machined, 3D printed, and laser-cut parts for test fixtures and small-batch prototype builds (~50 units).

Prototyping

- Prototyped 10+ iterations of a mounting device, reducing packaging volume by 50% and cost by 30%.
- Developed form-fit prototypes of cable routing and PCB interfaces to ensure ergonomic and assembly feasibility.
- Created user-research prototypes to showcase to customers and collect feedback to inform product requirements.

Compliance

- Scoped compliance requirements for a new product, ensuring adherence to the U.S. National Electric Code (NEC).

Analysis & Testing

- Investigated drop test failure and performed root cause analysis to reduce drop failure rate from 40% to 0%.
- Conducted tolerance stack-up analyses to ensure precision alignment across 500+ prototype units.
- Analyzed and validated mounting concepts with free-body diagrams and Ansys to inform material selection.
- Authored functional IR test plans and analyzed data to improve system reliability.

Project Management

- Collaborated with Electrical Engineers and Industrial Designers to fulfill cross-disciplinary project requirements.
- Maintained BOMs in Teamcenter PDM for 300+ part assemblies.
- Led project creation and cross-discipline meetings for an accessory product projected to reach \$4M in annual revenue.

DLP 3D Printer Calibration Device (Senior Capstone) - Project Manager *January 2025 - April 2025*

Project Management

- Led a six-person team with parallel workstreams to create an automation device, reducing data collection time by 90%.
- Facilitated weekly meetings with the client/advisor to align progress with project objectives.
- Delegated tasks and organized timelines to keep the team on track and working efficiently in parallel.
- Managed BOM documentation and identified cost-saving opportunities, reducing final cost by 20%.

Analysis & Testing

- Analyzed tolerance stack-up to evaluate device accuracy and guide assembly design improvements.

Northeastern Formula SAE - Chassis Design Lead (1 Year Leadership) *January 2022 - May 2024*

Technical Design

- Designed the team's first chassis in five years, documenting all decisions and lessons thoroughly for future iterations.
- Designed and assembled a 76-part chassis and a 40-part welding jig.

- Optimized the tube structure for a 20G impact with FEA, achieving a 20% weight reduction.
- Designed a fit test to calibrate jig dimensions, resulting in a measured tolerance of $\pm 1/32$ in.

Compliance

- Ensured compliance with FSAE codes, and prepared safety and structural justification reports (SES).

Project Management

- Locally sourced welding materials, improving safety and reducing material costs by 25%.
- Coordinated with 10 other leads to integrate designs with the chassis and build a complete car.
- Worked with other project leads to integrate Ergonomics, Suspension, Drivetrain, and Battery Projects into the chassis.
- Mentored three team members in chassis design and fabrication, ensuring sustainable project leadership.

ASME Northeastern Chapter - SolidWorks Course Instructor

September 2022 - December 2022

- Instructed ~40 students in CAD modeling for Certified SolidWorks Associate (CSWA) exam prep.
- Helped students troubleshoot SolidWorks part designs and user settings.

FIRST Robotics, Red Storm 509 - Team Lead/CEO (2 Years Leadership)

September 2017 - May 2021

- Designed the 2021 minibot assembly in Onshape, prototyping with machined, CNC-milled, and laser-cut parts.
- Trained 10 students in the effective and safe use of machining equipment and foundational CAD modeling in Onshape.

TECHNICAL SKILLS

DFM Experience: Injection molding, metal stamping/bending, flex PCBs, 3D printing, CNC, lathe, laser cutting

Software Applications: SolidWorks, SolidWorks PDM, Ansys, HSMWorks, Siemens NX, Teamcenter, Windchill, MATLAB, TracePro, Confluence, Slack, G Suite, Onshape

EDUCATION

Northeastern University - Boston, MA

September 2021 - May 2025

Bachelor of Science in Mechanical Engineering

GPA: 3.59

WORK EXPERIENCE

Camp Skylemar - Wedding Warrior

August 2025

- Prepared event spaces and lodging for 150 guests to ensure a polished and welcoming experience.
- Built relationships with guests while transporting them across campus to provide a positive, personable experience.
- Supported dining service by discreetly bussing and waiting tables to maintain uninterrupted guest enjoyment.

Getinge - Medical Device Sterilization Intern

June 2022 - August 2022

- Analyzed design impact on sterilization for 250 Class II medical devices, reducing required validation testing by 60%.
- Authored a 60-page internal process for sterilization that has been adopted across all product lines for over 10 years.

Ace Hardware - Assistant Sales Associate

August 2019 - August 2021

- Assembled and delivered grills to improve customer satisfaction and ease of purchase.
- Informed customers on product details and value to encourage and guide purchasing decisions.

OUTDOOR TRIP LEADERSHIP EXPERIENCES

Camino de Santiago - Camino de Francés - 780 km (480 miles) in 31 days

July 2025

- Completed the journey on a \$2,000 budget by minimizing gear expenses and resourcefully managing daily needs.
- Built community by organizing and leading a 10-person pilgrim group, enhancing morale and engagement at hostels.
- Cooked and shared new recipes to create cultural exchange experiences with fellow pilgrims.

New Hampshire White Mountain 4000 Footers - 48 Peaks Summited

June 2020 - August 2021

- Planned and executed 27 hikes, coordinating logistics, safety planning, and group preparedness.
- Recruited and prepared 10 peers for hikes, equipping them with medical, safety, and winter gear for challenging conditions.

VOLUNTEER EXPERIENCE

Lurgio Middle School - Mt. Cardigan Trip Chaperone

October 2025

- Guided 20 8th graders to summit Mt. Cardigan, maintaining group safety
- Prepared food and assisted students with tent & camp setup over 3 days of camping

Appalachian Mountain Club (AMC) - Trail Work Crew Member

October 2025

- Laid down 100 + feet of new boardwalk on the Lonesome Lake trail to improve hiker safety for 20 years

Community Servings - Food Preparation Worker

December 2024 - June 2025

- Prepared and packed meals alongside a team to support community members in need.
- Trained new volunteers in safe and efficient food preparation techniques.

Saint Elizabeth Seton Church - Masters of Ceremony

March 2019 - March 2020

- Assisted priest in coordinating ceremonies and church services.
- Supervised new altar servers.

PERSONAL INTERESTS

Mountain Hiking | Cooking | Strength Training | City Travel