

Nine Morch

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Education

Massachusetts Institute of Technology

B.S. in Mechanical Engineering, Minor in Theater Arts · GPA: 4.6/5.0

Cambridge, MA

Graduation Date 06/2023

Skills

- **CAD:** Solidworks (8 yrs), Onshape (5 yrs), PTC Creo Parametric, Inventor, Fusion360, AutoCAD; GrabCAD, PDM
- **Programming:** Basic skills in MATLAB, Python, HTML, TeX; GitHub
- **Other Software:** Microsoft Office products (Word, PowerPoint, Excel and more) and Google equivalents
- **3D Printing:** Design and printing for FDM, SLA, and MJF
- **Machining:** Injection molding, thermoforming, lathe, CNC mill, waterjet, laser cutter, saws, hand tools and more
- **Project Management:** Professional Communication, Presentation, Organization, familiarity with Atlassian software

Work Experience

Midnight Mansion

Fabrication Overhire

Boston, MA

06/2026 - Ongoing

- Constructed a variety of plywood setpieces, including flats, unique structural elements, and unique decorative elements
- Read, interpreted, and checked 2D engineering drawings
- Assisted with packing and loading for transport

Omnimax International

Corporate Manufacturing Engineer

Remote

03/2025 - 11/2025

- Designed and supported Lean Manufacturing improvements and other corporate-level projects
- Identified and onboarded specialized vendors for plant projects; created Scope of Work documents
- Designed tests and performed data analysis to diagnose machine issues, fixing product quality issues
- Created plans for adopting automation solutions across multiple plants

Alloy Enterprises

Mechanical Engineer

Burlington, MA

08/2023 - 11/2024

- Designed mechanical systems for large additive manufacturing machinery
- Created and implemented digital BOM and Inventory Management system, improving workflow and inventory accuracy
- Refined and consolidated design information into SolidWorks CAD model, ensuring adherence to CAD standards
- Performed tolerance analysis on parts under fluctuating heat conditions, then created manufacturing drawings using GD&T
- Contributed to small R&D focus teams for the improvement of process parameters, including material properties

Distributed Robotics Lab, CSAIL

Undergraduate Researcher

Cambridge, MA

06/2022 - 08/2022

- Designed mechanical testbeds to investigate the motion of Handed Shearing Auxetic (HSA) design patterns
- Iterated upon HSA designs to determine effects of various changed dimensions
- Programmed and conducted mechanical property tests for organic 3D printed shapes
- Managed SLA and FDM prints of a variety of material types, including flexible resins

Applied Minds

Mechanical Engineering Intern

Burbank, CA

06/2021 - 08/2021

- Designed mechanical interfacing parts between measurement instruments and 3-axis gantry to create an optical scanning testbed
- Wired the testbed, tested and troubleshoot all connections
- Conducted thermal tests and processed resultant data into relevant graphs

Simplexity

Mechanical Engineering Intern

San Diego, CA

06/2020 - 08/2020

- Recovered, repaired and updated old or outdated CAD files
- Programmed macros for SolidWorks and various Excel-based financial tools
- Programmed updates for the Excel tools using PowerQuery and VBA
- Assembled tools

Leadership Experience

2.009: Product Design (Senior Capstone)

Cambridge, MA

System Integration Officer

09/2022 - 12/2022

- Served as co-team-lead for a 16 person team, including leading meetings, assigning roles, and setting weekly goals
- With the team, worked from initial design to alpha product, including building and testing
- Presented the alpha product and relevant research to an audience of several thousand people

MIT Assassins' Guild (Live Action Roleplay Club)

Cambridge, MA

Lead Writer

06/2023 - ongoing

- Led 4-7 person writing teams to design, write, and produce multiple Live Action Roleplay (LARP) games
- Created and updated information-tracking and progress-tracking documents to ensure completed and coherent games
- With the writing team, publicised, cast, and ran each completed game, including printing out game materials, running rules seminars for players, and GM'ing games as they ran

MIT Spinning Arts (Firespinning Club)

Cambridge, MA

President (5/22-5/23), Exec (5/20-5/23), Trainer (5/21-ongoing)

05/2020 - 05/2023

- As President: Led the 6-person Exec team in weekly meetings; implemented safety measures and improved on existing systems
- Worked with multiple administrative groups to reserve spaces, register events, secure club budget, and ensure safety
- With the Exec team, planned shows and events, including purchasing fuel, props, and food
- As Trainer: appointed/onboarded trainers, ran safety trainings and firejam events, and conducted safety checks

MIT Centrifuges (A Capella Group)

Cambridge, MA

Music Director

12/2021 - 12/2022

- Arranged the semester's setlist, set timelines for learning songs, and scheduled rehearsals
- Led rehearsals, including conducting songs and facilitating solo auditions; ensured the group was musically prepared for concert
- Provided feedback for groups and individuals, including running section rehearsals and solo workshops

MIT Residential Exploration Week/Campus Preview Weekend

Cambridge, MA

Activity Leader

01/2022 - 04/2023

- Led traditional student-run activities for incoming students, including being the sole leader for an event requiring 40+ eventrunners and accommodating 600+ incoming students

FIRST Robotics Team Green.Griffins; 10092

San Diego, CA

Team Lead, Mechanical Lead, Engineering Notebook Lead

09/2007 - 04/2019

- As Team Lead: Scheduled and led team meetings, including arranging design reviews with professional engineers
- As Mechanical Lead: Managed the progress of the mechanical design of the robot
 - While Mechanical Lead, team won the PTC Design Award at West Superregionals and placed in both mechanical design awards at Houston World Championships
- As Engineering Notebook Lead: Compiled the team's progress into the Engineering Notebook; led the team in creating communication documents for display and judging
- Taught younger students CAD, design, prototyping, machining, and communication

Projects

- **Engineering Thesis (Spring 2023):** Designed a set of experiments for FDM 3D printing, investigating the effect different print settings had on various aspects of print quality
- **MIT Mystery Hunt 2025:** Credited as artist, actor, puzzlerwriter, factchecker, and weekend-of gamerunner in the Two P.I. Noir mystery hunt, including illustrating several puzzle-filled or puzzle-relevant pieces
- **QR-display Dodecahedron:** Designed in Onshape, 3D printed, and assembled a QR-code display object for Outerspace Hardware Meetup in Boston

Hobbies

Firespinning — Circus Arts — Chainmail Jewelry Creation — Illustration/Digital Art — Writing (Games, Puzzles, Fiction) — Puzzling/Puzzle Hunts and Board Games