

# Gurjaap Bal

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Eager Software Developer with the goal of gaining more experience to become a Software Engineer.

## EMPLOYMENT

### Orchard Machinery Corporation Intern

June 2022 - August 2022

- Extensive design experience on Solid Works creating machine components and fixtures
- Worked alone to solve real world issues like redesigning a bumper to allow for towing
- Teamed up with Mechanical Engineers in the industry to tackle large-scale problems such as modeling a conveyor belt assembly for a new machine

## EDUCATION

### Massachusetts Institute of Technology, Cambridge, MA

**4.80 GPA**

Bachelor's of Science in Computer Science and Engineering

*May 2025*

Minor in Mechanical Engineering

*May 2025*

### Relevant Coursework

Fundamentals of Programming, Software Construction, Intro to Algorithms, Computation Structures, Low-Level Programming in C and Assembly, Mathematics for Computer Science

### Spring '24 Coursework

Design and Analysis of Algorithms, Computer Systems Engineering, Intro to Machine Learning

### Technical Skills

Considerable experience with **Python, C, Typescript, Assembly**

## PROJECTS

### Photoshop Tool using Typescript

- Developed a grammar and expression parser to read text inputs and edit an image
- Allowed for image resizing, overlaying images, adding text to an image, and gluing images together through Class implementations of an Expression Interface

### Platformer Game backend with Python

- Represented player and objects as sprites with attributes such as position coordinates and velocity vectors
- Designed a collision detection algorithm using hitboxes on each sprite and translation vectors to correct collisions

### Memory Card Matching Game using Typescript

- Implemented multiplayer feature by using concurrency through Promises
- Substantial work with abstract data types and keeping them safe from rep exposure