

# Shambhavi Goyal

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## Education

**University at Buffalo, The State University of New York**

*Aug 2023- May 2027*

*BS in Computer Science, Honors College*

- GPA: 3.9/4.0
- **Coursework:** System Programming, Computer Architecture, Data Structure, Algorithms, Object Oriented Programming, Python Programming
- **Activities:** Member of the Leadership House and Women in Science and Engineering

## Technologies

**Languages:** C, Java, Python, JavaScript, HTML, CSS, SQL

**Frameworks & Libraries:** Node.js, React, Bootstrap, Tailwind CSS

**Databases:** MySQL

**Version Control:** Git, GitHub

**Development Environments:** Emacs, Visual Studio Code, IntelliJ, PyCharm, Eclipse, Sublime Text, Vite

**Operating Systems:** Linux, Windows

## Projects

**Conway's Game of Life with Hardware Logic Circuit**

*Nov 2024*

- Developed a hybrid software-hardware system for Conway's Game of Life, integrating an Arduino UNO R4 with custom-built AND, OR, NOT gates using NPN transistors.
- Overcame challenges in circuit design, voltage regulation, and hardware-software synchronization, gaining hands-on experience in embedded systems and digital logic.

**Instant Messenger Application**

*Dec 2024*

- Built a real-time messaging app in C using client-server architecture with TCP sockets, supporting 100+ concurrent users.
- Implemented serialization in C to reduce message payload size by 30% and optimized transmission efficiency.
- Tested system with 1,000+ message exchanges to validate accurate delivery, low latency, and robust client-server interaction.

## Experience

**Math Tutor**

*Buffalo, NY*

*Math Place- Thomas J. Edwards Undergraduate Learning Center*

*May 2024- Present*

- Provided support and tutoring to 100+ students in Advanced Calculus, Linear Algebra, and Business Math.
- Helped students understand math concepts, fostering strong fundamentals and promoting independent learning.

**Undergraduate Teaching Assistant: Discrete Structures & UB Seminar**

*Buffalo, NY*

*CSE Department*

*Jan 2024 - Present*

- Assisted with course material and provided academic support through 20+ office hours, helping students understand complex topics in discrete mathematics.
- Graded assignments & exams, providing detailed feedback to enhance student comprehension and performance.

**Resident Assistant**

*Buffalo, NY*

*Campus Living*

*May 2024 - Present*

- Guided and supported 30 Honors College students with personalized academic, personal, and career advising to promote their success.
- Collaborated with fellow RAs and campus staff to plan and execute community-building events, activities, and educational programs.