Gaurav Subedi

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Education

The University of Texas at Arlington, BS in Computer Science — Aug 2024 - May 2028

- GPA: 3.82/4.0
- **Coursework:** CS50's Web Programming with Python and JavaScript (edx), Fundamentals of Programming (CSE 1310 and CSE 1320), Calculus I and II, Discrete Structures

Projects

github.com/gaurav-subedi

Face and Gesture Detection System (Python, OpenCV, MediaPipe, WebSockets, C# (WinForms))

- Developed a real-time face and hand gesture detection system, enabling dynamic UI updates and gesture-based interactions.
- Integrated Python AI models with C# UI via WebSockets, achieving a 30% improvement in response time.
- Enhanced detection accuracy by implementing OpenCV's Haar Cascade for face recognition and MediaPipe for gesture tracking.
- Optimized real-time data streaming through a multi-threaded WebSocket server, improving system responsiveness.

To-Do List Web App (React.js, Django REST Framework, PostgreSQL)

- Developed a full-stack to-do list app using React and Django REST API to manage tasks across sessions via PostgreSQL.
- Improved task tracking experience by designing a responsive UI and integrating RESTful endpoints for CRUD operations.
- Enabled seamless frontend-backend communication by implementing CORS and JSON-based API handling.

Snake Game (C# (WinForms), Game Development)

- Developed a classic Snake game with real-time controls, enhancing player experience through smooth movement and collision detection.
- Designed and rendered game elements using C# Graphics API, ensuring visually appealing gameplay.
- Implemented an interactive game loop using Timers, enabling fluid gameplay mechanics and automatic food generation.

Experience

Smart Waste Management System using Arduino — Aug. 2023 – Oct. 2023

Research Assistant| Trinity International Secondary School

- Conducted research on sensor-based automation by developing a Smart Dustbin using Arduino and ultrasonic sensors, improving hands-free waste disposal efficiency.
- Investigated power optimization techniques by analyzing sensor response time and servo motor efficiency, reducing energy consumption by 20% for sustainable operation.
- Explored applications in smart city waste management by integrating an IoT-based monitoring system, allowing real-time tracking of bin capacity to enhance urban sanitation strategies.

Organizations and Honors

Alpha Lambda Delta: Member — Jan. 2025- Present

Mavericks Academic Scholarships — Aug 2024- May 2028

Leo Club of Kathmandu Creative: Active Volunteer — May 2022- March 2023

Trinity Science Club: President — July 2022- May 2023

Skills

Languages: HTML, CSS, JavaScript, React.js, C, C#, Python

Technologies: OpenCV, MediaPipe, Flask, Django, WebSockets, WinForms, SQL, CSV File Handling, REST APIs, Git/GitHub, Raspberry Pi, Overleaf (LaTeX).