Bishesh Raj Khanal

Bhaktapur, Nepal
+977-9765999991 • bishesh.khanal25@gmail.com
bishesh-khanal.github.io/Portfolio • Bishesh-Khanal

Versatile and self-driven Computer Science undergraduate with a passion for building interactive software. Experienced in game development using C++ and SFML, with ongoing exploration of 3D environments in Unreal Engine. Beyond games, skilled in Python-based data projects, web scraping, and machine learning. Awarded *Best Paper Presentation* for a machine learning research project at an international conference. Looking for opportunities to contribute to impactful software solutions in domains such as game development, artificial intelligence (AI) or data science.

Skills

Languages: C++, C, SQL, Python, C#, JavaScript, PHP

Technologies: MySQL, CMake, GDB, SFML, Unreal Engine, Git, Visual Studio, Anaconda, Jupyter, Spyder, Power BI, BeautifulSoup, Scikit-learn, Panel

Concepts: Game Loops, Collision Detection, Physics Engines, Dynamic Lighting and Shadows, UI/UX Design, Algorithm Design, Web Scraping, Data Cleaning, Data Analysis, Machine Learning, Relational Databases

Projects

- **Top-Down Adventure Game**: A top-down adventure game featuring patrolling and chasing enemies, health bars, and dynamic vision-blocking. Focus on AI behavior, dynamic camera and environment interaction.
- **BFS Simulator**: A project that visualizes how NPCs use Breadth-First Search to find the optimal path in a 2D grid. Great for learning pathfinding algorithms and game AI.
- **Platformer Game**: A multi-level game built with SFML. The players shoot, collect coins, and progress through increasingly difficult levels. Focus on physics-based movement, AABB collision detection, and camera systems.
- **Geometry Shooter**: Arcade-style shooting game where players face geometric enemies with random spawn positions. Implemented dynamic enemy AI, bullet mechanics, and a score tracking system.
- **2D Light Tracer**: Simulated real-time 2D light casting with shadows based on obstacles. Users control the light source with the mouse, with dynamic light-shadow interaction.
- **Texture-Revealing Light Tracer**: Enhanced version of the light tracer to reveal only portions of a texture affected by light. Used advanced pixel manipulation and visibility detection techniques.
- **Fake News Detector**: Built and trained a classification model using Python for real-world data extracted from a relevant news site. Presented the project at an international conference and received the *Best Paper Presentation* Award.
- **Job Market Data Pipeline (Web Scraper)**: Built a Python script to scrape and analyze job listings data. Parsed job titles, salaries, rating, etc. from structured HTML. The data were cleaned and transformed, the exploratory data analysis (EDA) was performed and trends in job roles, type, company, salary distributions, etc. were visualized using Matplotlib, Seaborn, and interactive dashboards
- **Tech Company Data Scraper**: Built and deployed a web scraper to extract structured data from 100+ tech company profiles on a professional developer platform. Collected details including company name, location, focus on employee skills, size, etc. Cleaned and standardized the data for consistency and analysis, showcasing strong skills in web scraping, data wrangling, and information extraction from semi-structured sources.

Achievements and Certificates

***Best Paper Presentation* Certificate** at the DST SERB-sponsored International Conference on Artificial Intelligence of Things for Sustainability, held on January 20 and 21st, 2024 (AIoT4S 2024)

Education

Kathmandu University — **Nepal**
Bachelor of Computer Science, Expected Graduation: 2026 — *2021–2026*
Key Courses: Data Structures, Algorithms, Computer Graphics, Software Engineering

Interests

Hobbies: Problem solving, Game development, Puzzle games, Fitness, and Hiking