Beerkanwar Singh

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EDUCATION

Dr. B. R. Ambedkar National Institute of Technology — Jalandhar, India
Bachelor of Technology in Computer Science Engineering — 2023 – 2027 (Expected)
CGPA: 7.61/10.0

GAME DEVELOPMENT SKILLS

- **Engines & Tools:** Unity (URP, New Input System, ScriptableObjects, Netcode for GameObjects, ML-Agents), Phaser, Tiled, Git
- **Gameplay Programming:** Player Controllers, Gameplay Math (vectors, dot/cross product), Object Pooling, State Machines, Event-Driven Systems, Data-Driven Design, Mobile Input & Camera, Multiplayer (server-authoritative), Game AI & Reinforcement Learning
- **Game Design:** Mechanic Design & Iteration, Level Design, Difficulty/Progression Balancing, Playtesting, Game Feel, Game Jams
- **Languages & CS:** C#, C++, JavaScript, Python; DSA, OOP, Design Patterns, MVVM
- **AI Tools:** GitHub Copilot, Gemini

EXPERIENCE

Aicade (Braincade Technologies Pvt. Ltd.) — Remote
Game Development Intern — Jun 2025 – Aug 2025

- Independently developed and published 21 HTML5 games (JavaScript, Phaser, HTML5, CSS3) from team-provided reference concepts, iterating on mechanics and UI; the games fed the company's RAG pipeline for AI-driven game development.
- Used AI-assisted workflows (GitHub Copilot, Google Gemini) for code, debugging, and selected asset generation while owning the final implementation. Received positive evaluations; one title stayed in the platform's top 5 for approximately eight months.

PROJECTS

Snake — *Unity, C#, Google Play Store & PC*

- Shipped to the Google Play Store; paired a `LinkedList` (O(1) head/tail updates) with a synchronized `HashSet` (O(1) self-collision checks) instead of O(n) array operations on every tick.
- Built buffered keyboard/swipe input that rejects illegal 180° reversals, plus adaptive camera scaling for any screen aspect ratio.
- Designed a score-driven difficulty curve and an autonomous "attract mode" AI snake with its own death/respawn lifecycle.

Kitchen Chaos — *Unity, C#, ScriptableObjects*

- Designed a polymorphic interaction system where 8 station types override shared `Interact`/`InteractAlternate` contracts, and per-object cooking state machines (Idle→Frying→Fried→Burned) driven by ScriptableObject-authored timers and a data-driven recipe system.
- Decoupled UI, audio, and gameplay with C# events and wrote a static-state reset manager to fix Unity's cross-scene static delegate persistence bug.

Bomb Massacre — *GMTK Game Jam – Unity, C#, Tiled*

- Co-designed a "cook-to-throw" bomb mechanic on Unity's 2D Platformer Microgame: a pool of 3 bombs whose blast radius grows with hold time (auto-explodes if held too long), under a strict jam deadline.
- Implemented circular-radius destructible tilemap terrain, checkpoints, and single-scene level select; levels authored in Tiled.

Maths & Physics Playground — *Unity, C#, Vector Math*

- Built a field-of-view detector that flattens vectors onto the XZ plane before the dot-product check, avoiding vertical-offset errors.
- Designed a cross-product turret-aiming controller that skips normalization so rotation slows near alignment (no overshoot jitter); added a self-expanding projectile pool.

Geometry Survival — *Unity, C#, Top-Down Shooter*

- Built a top-down shooter with raycast mouse aiming, object pools for bullets and enemies, and a `MaterialPropertyBlock` dissolve effect that preserves GPU batching.

Reinforcement Learning on Flappy Bird — *Unity ML-Agents (PPO), C#*

- Trained a PPO agent (4-dim continuous observations, 2 discrete actions, 500,000 steps) with event-driven reward shaping; one script supports both human and trained-policy control.

ACHIEVEMENTS

- Solved 250+ data structures and algorithms problems; Winner, Team CTF Cybersecurity Competition.