AKSHAR VANDARA

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EDUCATION

Northeastern University, Boston, MA — May 2026
Master of Science, Game Science and Design, GPA 3.7/4
Relevant Courses: Game Data Science, Mixed Research Methods in Games, Generative Game Design

Gujarat Technological University, Ahmedabad, India — Jun 2023
Bachelor of Engineering, Computer Engineering, GPA 3.6/4
Relevant Courses: Operating System, Software Engineering, Artificial Intelligence, Cloud Computing

TECHNICAL SKILLS

- **Game Dev**: Unity, Unreal Engine, Blueprints, Game Physics, Core-gameplay management, Database handling
- **Game Design**: Animations, Animation Rigging, UI integration, Environment Design
- **Programming Languages:** C#, C++, JavaScript, Python, Java, R, C, SQL
- **Python Libraries:** NumPy, Pandas, PyTorch, Cuda, TensorFlow, PyGames, Flask, Django, SQLAlchemy
- **Front-End:** HTML, CSS, JavaScript, Three.js, Tailwind, React, Node, Vue, Angular, Next.js, Vite.js
- **Developer Tools:** Git, Perforce, Firebase Realtime DB, Firebase Cloud functions, SourceTree, Gitlab, Figma, Trello

PROFESSIONAL EXPERIENCE

Research Assistant
Northeastern University, Boston, MA, USA — Feb 2025 – Present
- Researching and expanding Sturgeon, a Python-based procedural level generation system, as an alternative to Space-Time Wave Function Collapse (STWFC) to efficiently generate valid, solvable 2D game levels (e.g., Field, Maze, Sokoban) with improved constraint handling and pattern capture.
- Designing and modifying Python scripts and utility tools to optimize level generation speed, achieving a 5-10% reduction in generation time compared to STWFC in initial test cases, while improving reliability and solution path validation.
- Conducting comparative analysis between Sturgeon and STWFC, focusing on scalability, execution time, and failure reduction, with the goal of improving reliability by 10-15% for complex level generation tasks.

Unreal Developer Intern
Otisco Studios, Boston, MA, USA — Dec 2024 – Present
- Developed core gameplay mechanics for O2xygen, a 3D rogue-like, including combat, inventory systems, and procedurally generated maps with underwater exploration.
- Implemented AI behaviors for challenging enemy encounters, enhancing player experience, and optimized performance and visual quality by integrating advanced Unreal Engine features like Lumen and Nanite.

Unity Developer
Arcadon Games, Bangalore, India — Mar 2023 – Jul 2024
- Engineered core mechanics for Cricket Tycoon, using state machines and player interaction systems, achieving a 30% improvement in gameplay responsiveness.
- Integrated Firebase backend solutions, managing over 1,000+ user data entries, inventory systems, and game progress synchronization with real-time updates via cloud functions.
- Designed AI simulation systems capable of simulating up to 30 randomized matches per minute, enhancing gameplay variety and reducing load times by 40%.
- Conducted alpha testing with 100+ users, achieving 85% positive feedback, and resolved 20+ critical issues to significantly improve game stability and user engagement.

PROJECTS

O2xygen — Dec 2024 – Present
- Developing a roguelike featuring procedural cave generation that creates unique levels on click of a button, supporting underwater physics across 5 distinct biomes.
- Developed modular combat system supporting 8 weapon types and inventory framework handling 20+ unique items.

Smil-E-Mart - Link — Nov 2024 – Dec 2024
- Architected narrative system processing multiple unique story branches with 10+ decision points, driving average session length to 30 minutes.
- Implemented emoji-based dialogue system supporting 15+ unique character interactions, achieving 90% player comprehension rate in playtests.

Cricket Tycoon — Mar 2023 – Jul 2024
- Built sports management system capable of handling 1000+ concurrent users with Firebase, maintaining sub-100ms response times for pseudo-multiplayer features.
- Orchestrated alpha testing phase with 100+ users, iterating through 3 major versions to achieve 85% user satisfaction and 40% reduction in bug reports.

Tic-Tac-Toe: Endless Fun Game - Link — May 2024 – Jun 2024
- Launched a reimagined version of Tic-Tac-Toe with unique gameplay twist to increase replayability and 3 difficulty AI modes, available on Google Play Store. Focused on creating to move beyond the traditional solved format, ensuring long-term user interest.