AKSHAR VANDARA

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EDUCATION

Northeastern University, Boston, MA — May 2026
Master of Science, Game Science and Design, GPA 3.8/4
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.

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.

Software Developer Intern
Tntra Engineering, Vadodara, India — Jul 2022 – Aug 2022

- Delivered three web development prototypes using Django, Spring Boot, and JavaScript within four weeks, achieving zero critical bugs in production and 100% on-time delivery.
- Analyzed 5+ blockchain gaming platforms and NFT marketplaces, delivering a technical assessment that identified 3 viable integration paths for in-game asset trading.
- Researched 4 game development frameworks and 3 networking solutions across 8-week training sprints, achieving 95% completion rate on assigned technical challenges.

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, 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.