Amirali Ahangari

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GitHub: github.com/lordipio YouTube: youtube.com/@AmirAli-bh7fi/videos

Education

Bachelor of Industrial Engineering

Sept 2020 – Present

Amirkabir University of Technology (Tehran Polytechnic)

GPA: 3.58/4.00 (Converted from 16.59/20)

Research Interests

Computer Graphics, Game Programming, Engine Programming, Software Engineering

Research Experience

Thesis: Educational Gaming Application

In Preparation

Amirkabir University of Technology

• Developing an educational gaming application integrating gamification principles to enhance learning experiences.

Publications

Solution Approaches in Disaster Management

In Preparation

Co-authored with faculty members at Amirkabir University of Technology

- Conducted a comprehensive literature review on optimization models and algorithms in disaster management.
- Analyzed existing solution approaches for logistical challenges during disaster response.

Teaching Experience

Teaching Assistant, Algorithm Design

Sept 2023 - Sept 2024

Amirkabir University of Technology

- Taught Object-Oriented Programming (OOP) and routing algorithms such as Dijkstra and A*.
- \bullet Assisted students in understanding algorithm optimization and design techniques.

Teaching Assistant, Gamification

Sept 2024 – Present

Amirkabir University of Technology

- Conducted discussions on applying gamification techniques to learning and engagement platforms.
- Assisted in designing projects to implement gamification principles.

Professional Experience

Game Developer, Nasir Driving Simulator

Sept 2023 - Present

Worked with Unreal Engine 5 for driving simulation projects.

More info: Nasir Driving Simulator

- Developed an interaction system for soil and excavator bucket using physics-based programming.
- Implemented design patterns such as Singleton and SOLID principles.
- Utilized actor components for dump trucks and excavators for load charging/discharging.
- Created vehicle gauge displays using Unreal UI.
- Improved familiarity with shader programming, materials, and version control using Git.

Unity Developer, Dead Mage

 $\mathbf{Jan}\ \mathbf{2025} - \mathbf{Feb}\ \mathbf{2025}$

Worked on the prototype of a 2D tile-based digging game. Dead Mage Steam Page

- Utilized Unity Tile Maps and the Grid System to implement the digging mechanics.
- Developed gameplay features to enhance player interaction and responsiveness.
- Optimized asset usage and tile-based rendering for performance efficiency.

Projects

Third Person Adventure Game (Unreal Engine 5)

GitHub Page Video Link

• Implemented character animations including inverse kinematics, motion warping, and animation blueprints.

- Developed enemy AI using C++ and Blueprints.
- Used the Niagara system to create visual effects.
- Designed realistic environments using landscape editor and foliage tools.

Endless Runner Game (Unity)

GitHub Page Video Link Download Link

- Created a generative map with an isometric view for a 2D-to-3D game experience.
- Utilized design patterns such as Object Pooling and Singleton to optimize performance and resource management.
- Designed a responsive UI adaptable to various Android devices.

Galaga Clone Game (OpenGL)

GitHub Page Video Link

- Designed transformations using Model, View, and Projection matrices for accurate 3D rendering.
- Implemented collision detection for interactions between players and enemies.
- Created smooth animations and frame rendering for a polished gaming experience.
- Used VAOs, VBOs, and IBOs for efficient rendering of game elements.

Third Person Shooter Game (Unreal Engine 4)

GitHub Page Video Link

- Combined C++ logic with Unreal Blueprints for visual effects and animations.
- Built the foundation of game logic and AI using C++.

Skills

- Game Engines: Unreal Engine 4/5, Unity
- Programming Languages: C++, C, C#, Python, SQL, Blueprint Visual Scripting
- Graphics Libraries: OpenGL
- Machine Learning: Concepts and implementation
- Languages: English (IELTS Academic Score: 7.0), Persian

Relevant Courses

- Computer Programming
- Software Engineering
- Principles of Database Design
- Linear Algebra
- Algorithm Design Foundations
- Artificial Intelligence
- Data and Information Analysis
- $\bullet\,$ Principles of Simulation
- Optimization I and II
- Numerical Analysis

- Calculus I and II
- Differential Equations
- General Physics I and II

Certifications

- Information Systems Amirkabir University of Technology
- Machine Learning Specialization Coursera
- Story and Narrative Development for Video Games Coursera
- Learning How to Learn: Powerful mental tools to help you master tough subjects Coursera

Recommendations

- Amin Nikanjam, Research Associate at Polytechnique Montréal (amin.nikanjam@polymtl.ca)
- Ali Nahvi, Assistant Professor at K. N. Toosi University of Technology (nahvi@kntu.ac.ir)
- Marzieh Zarinbal, Assistant Professor at Amirkabir University of Technology (mzarinbal@aut.ac.ir)
- Roghaye Khasha, Assistant Professor at Amirkabir University of Technology (r.khasha@aut.ac.ir)

Activities & Hobbies

- Passionate about storytelling through cinema and video games, with experience leading the Amirkabir University Cinema Community and running a YouTube channel focused on movie reviews, cinema history, and trends.
- Playing guitar and creating music.