

Amirali Ahangari

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My Website: <https://lordipio.github.io/>

Education

Bachelor of Industrial Engineering

Sept 2020 – Present

Amirkabir University of Technology (Tehran Polytechnic)

GPA: 3.44/4.00 (Converted from 16.4/20)

Research Interests

Computer Graphics, Game Programming, HCI, Engine Programming, Software Engineering, Game Design

Research Experience

Thesis: Development of an Educational Game Application for Children with Autism Spectrum Disorder

Amirkabir University of Technology [GitHub Repository](#)

In Preparation

- Designed and developed a Unity-based educational game for enhancing cognitive, sensory, and social skills in children with ASD.
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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.
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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*.
- Assisted students in understanding algorithm optimization and design techniques.

Teaching Assistant, Gamification

Sept 2024 – December 2024

Amirkabir University of Technology

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

Game Developer, Nasir Driving Simulator

Sept 2023 – Present

Worked with Unreal Engine 5 for driving simulation projects. [Nasir Driving Simulator](#)

- Developed an interaction system for soil and excavator bucket using physics-based programming.
- Integrated FMOD for advanced audio control and Voxel Plugin for soil interaction.
- 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

Jan 2025 – Feb 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.
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Projects

3D Software Renderer (C + SDL2)

[GitHub Page](#) [Video Link](#)

- Built a real-time 3D renderer from scratch using C and SDL2, implementing a full rendering pipeline.
- Implemented camera systems, perspective projection, rasterization, and depth buffering manually.
- Developed support for mesh loading, wireframe and filled polygon rendering.
- Focused on low-level optimization and mathematical transformations without relying on external graphics libraries.

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.

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

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|---------------------------------|---------------------------------|----------------------------|
| • Computer Programming | • Artificial Intelligence | • Calculus I and II |
| • Software Engineering | • Data and Information Analysis | • Differential Equations |
| • Principles of Database Design | • Principles of Simulation | • General Physics I and II |
| • Linear Algebra | • Optimization I and II | |
| • Algorithm Design Foundations | • Numerical Analysis | |

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.