

KALOYAN IVANOV

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PROFILE

I am a curiosity-driven Game Programming student at Saxion University of Applied Sciences with a strong background in **C++/OpenGL** and **C#/Unity**. I have experience in **Gameplay**, **Physics**, **AI**, and **Graphics programming**, with a solid foundation in **3D Mathematics**, **Software Architecture**, and **Design Patterns**. Bringing strong programming knowledge, I'm looking to gain hands-on experience in the creative industry and continue evolving as a developer.

COURSEWORK & SKILLS

First Year

Sep 2023 - Jul 2024

- Learned how to apply my **C# knowledge** to gameplay, physics and algorithms programming by utilizing a custom-made 2D game engine by the teachers.
- Developed my first fully functional Unity 3D Game, applying various **Software Architecture** techniques to ensure **maintainability** and **scalability**.
- Completed supplementary courses covering **Game** and **UI/UX design**, as well as professional skills like **Communication** and **Research**.

Second Year

Sep 2024 - Jul 2025 (Expected)

- Pursued advanced coursework in Graphics programming, with a focus on **3D Mathematics**, **C++**, and **3D Rendering using OpenGL**.
- Familiarized myself with more **Software Architecture** techniques, by applying **SOLID principles** and various **design patterns** while developing a Unity 3D Tower Defense game.

Group Projects

- Collaborated on multiple **group projects** (2-3 weeks), working closely with **Engineers**, **Designers**, and **Artists** to develop unique games.
 - **Effective communication** and **strong teamwork** allowed us to **navigate challenges** in a fast-paced development cycle and **successfully achieve our goals**.
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TECHNICAL SKILLS

- **Programming Languages:** C++, OpenGL (GLSL), C#
- **Tools:** Unity, SFML, GXP Engine (developed by teachers), Git, Visual Studio
- **Additional Technologies:** Figma, Tiled, Java, HTML, CSS (SASS), JavaScript (jQuery), MS SQL, ASP.NET Core MVC, Elixir, Erlang

PROJECTS & EXPERIENCE

ZRenIE - A 3D C++ OpenGL Engine

Sep 2025 - Present

- **ZRenIE** is a personal project I started for learning purposes, with a focus on **exploring engine development** and **deepening my C++ knowledge**.
- Its purpose is to serve as a flexible tool for experimenting with modern rendering techniques - **abstracting** away irrelevant details while allowing for **easy modification** and **extension** of the rendering pipeline.
- To achieve this, I am **designing** the architecture around **modularity**, making it **straightforward** to integrate new systems or behaviors without disrupting existing components.

C++

Sep - Nov 2024

- Participated in a **C++** course, exploring key concepts such as memory management through pointers and references, **CONST-ness**, OOP principles like **constructors** and **destructors**, File I/O.
- Designed and developed a **2D Battle Game** using the **SFML framework**, implementing game object hierarchy, scene setup by mapping JSON data into game objects, **sprite animations**, and persistent **high-score tracking** between sessions.
- Scored **10/10** on my final assessment.

3D Rendering with OpenGL

Nov 2024 - Present

- Independently studying **OpenGL** to expand my knowledge of **real-time rendering**.
- Thoroughly worked through the first two chapters of the '**LearnOpenGL**' book, focusing on **Coordinate Spaces**, **Camera Behavior**, and the **Phong Lighting Model**.
- Developed an interactive scene with Unity-style navigation, featuring **real-time lighting** from **Directional**, **Point** and **Spot lights**.

Procedural Paris - Procedural recreation of Paris in Unity

Oct 2025 - Present

- A project in which I experiment with different **Procedural Generation techniques** to **recreate** a small-scale city clone of the scenic **French Revolution Paris** of Assassin's Creed Unity.
- Procedural Generation techniques include **modular meshes** and **shape grammar**, **editor tooling**, and **mesh generation**.
- Conducted **Visual Research** on Paris in 1789 and **documented key insights**.

HellFryer - Unity 3D Split-Screen Co-op Game

Jan 2025

- Developed as part of a 3-week group project with a team of 6, including Engineers, Designers, and Artists.
- Established a clear Git workflow and code architecture, ensuring maintainability using **SOLID principles** and **design patterns**.
- Responsible for implementing the **co-op gameplay**, **role-switching mechanics**, **hunting equipment**, **monster behaviors**, and part of the **hostile items' interactions**.
- Successfully managed project complexity, meeting all planned milestones within the deadline.
- Achieved a final project score of **9/10** due to strong teamwork, organization, and execution.

Physics Programming

Mar - Apr 2024

- Participated in a **Physics Programming** course, learning about various concepts around **Vector Math** operations.
- For the assignment, I chose to develop a **2D Pool simulation**, implementing **aiming functionalities**, **cue charging**, **ball-ball/line/line caps collisions**, and **cue ball spin modifier**.
- Scored **10/10** on my final assessment.

EDUCATION

Bachelor of Creative Media and Game Technologies

Sep 2023 - Jul 2027 (Expected)

Saxion University of Applied Sciences

- Specialization: Game Engineer - Focus on Gameplay and Graphics programming

Mathematics and Computer Science

Sep 2018 - Jun 2023

High School of Mathematics "Dr. Petar Beron"

ADDITIONAL EXPERIENCE

Functional programming Software Development

Aug - Dec 2022

Internship at Quanterall Academy

- Erlang and Elixir software development

C# Web development

Feb 2021 - Nov 2022

Software University (SoftUni)

- C# with MS SQL and ASP.NET Core MVC framework software development.
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LANGUAGES

English - C1

Bulgarian - Native

IMAGES

