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**.

TECHNICAL SKILLS

- **Programming Languages**: C++, OpenGL (GLSL), C#
- **Tools**: Unity, SFML, GXPEngine (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 **Game** 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.

LANGUAGES

English - C1

Bulgarian - Native

IMAGES