

Isa Geriler

C++ Software Engineer | Graphics, Gameplay and Systems
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[Portfolio](#) | [GitHub](#) | [LinkedIn](#)

SKILLS

Programming Languages: C++, HLSL, Python, Java, SQL

Graphics: DirectX 12, Ray Tracing, Path Tracing, BVH Acceleration, GGX / Microfacet BSDFs

Engines and Tools: Unreal Engine 5, Blueprints, Niagara, Git, RenderDoc, Dear ImGui

Programming and Maths: Linear Algebra, SIMD, Multithreading, Profiling, Debugging, Databases

Libraries and Frameworks: WinSock, FMOD, Intel Open Image Denoise

Backend and Data: Spring Boot, Docker, OpenAPI, Flask, PostgreSQL, Microsoft SQL Server

Spoken Languages: Turkish (Native), English (IELTS Academic 8.0), Japanese (Beginner)

EDUCATION

MSc Games Engineering, University of Warwick, WMG

Sep 2025 - Sep 2026

- Dissertation: Path Guiding in Primary Sample Space via BSDF Inversion
- Modules: Computer Graphics, Advanced Computer Graphics, Games Engine Design & Development, Games Engineering, Programming & Fundamental Algorithms, Innovative Simulation Design and Development, Fundamentals of Games Research & Management
- Produced a critical literature review of signed distance field rendering and denoising in LaTeX two-column format, then built its findings into the core mechanic and renderer of Frontrooms. Presented weekly progress to staff and peers.

BSc Software Engineering, Isik University

Aug 2020 - Jul 2025

- Grade: 3.29 / 4.0 GPA (UK Classification: 2:1)
- Relevant coursework: Calculus, Linear Algebra, Data Structures & Algorithms, Analysis of Algorithms, Deep Learning in Artificial Neural Networks, Introduction to Computer Vision, Computer Organization, Operating Systems, Software Architecture, Human Computer Interaction

PROJECTS

Frontrooms | Individual Game

2026

Unreal Engine 5, C++, HLSL, Blueprints | [GitHub](#)

- Built a stealth-horror game with a denoising-inspired mechanic. Standing still clears visual noise from enemies while allowing them to approach, linking visibility to player risk.
- Implemented enemy vision, pursuit and retreat in C++. Used HLSL sphere tracing to render signed distance field enemies with independently configurable appearances.
- Used Git for version control and debug visualisations to check enemy detection. Presented fortnightly builds to staff and peers, adding a tutorial and adjusting movement speeds in response to playtest feedback.

Software Rasterizer Optimisation

2026

C++, SIMD, Multithreading | [GitHub](#)

- Reduced mean execution time by 49.3% through sequential optimisations to a supplied CPU rasterizer. The 1,600-object benchmark scene fell from 86.4 seconds to 43.8 seconds across 10 runs on an Intel Core Ultra 7 155H.
- Profiled bottlenecks, applied SIMD instructions, and cached transformed vertices to avoid repeated calculations. Evaluated a thread pool across three test scenes to investigate CPU scaling.

Path Tracer and Light Transport Renderer

2026

C++, Multithreading, Intel Open Image Denoise | [GitHub](#)

- Extended a CPU path tracer with light tracing, instant radiosity and material models for metal, glass and layered surfaces to simulate different lighting and material behaviour.
- Distributed rendering across CPU threads in 32x32 tiles and added a Binned SAH BVH to reduce geometry searches.
- Integrated Intel Open Image Denoise using colour, albedo and normal buffers to produce denoised images at 16 samples per pixel across four test scenes.

Skyfire Uprising Level 2 | Team Game, Group Lead

2026

Unreal Engine 5, HLSL, Blueprints, Niagara

- Led a six-person group responsible for Level 2 within a 42-person international team, coordinating the group's work and keeping the level consistent with the art direction agreed across the seven level teams.
- Built Gerstner Wave water and Niagara rain systems, reusable wetness materials, volumetric fog and lighting for the level. Exposed material parameters so teammates could integrate and tune effects without editing shader logic.

DirectX 12 Rendering Framework

2025

C++, DirectX 12, HLSL | [GitHub](#)

- Built a framework to load and display 3D models, using GPU instancing to draw repeated instances of each mesh in a single draw call.
- Implemented camera controls, normal mapping, parallax occlusion mapping and animated grass to support interactive scene exploration. Inspected rendering with RenderDoc.

Client-Server Chat Application

2026

C++, Multithreading, WinSock, Dear ImGui, FMOD | [GitHub](#)

- Built a multiuser desktop chat application with username validation, public broadcasts and private message routing. Connected a Dear ImGui interface and FMOD notifications to the WinSock client-server implementation.

Face Recognition for Authentication | Team Graduation Project

2025

Python, OpenCV, FaceNet, Flask, PostgreSQL

- Co-developed an authentication prototype with face matching, a staff dashboard, access permissions and two-factor authentication.
- Selected for the IEEE SIU 2025 Undergraduate Projects Competition and presented the work as a poster.

EXPERIENCE

Student Assistant, Isik University (Sile, Istanbul)

Apr 2024 - May 2025

- Taught and supported over 100 students across Java, object-oriented programming, data structures and Arduino/C++ labs, explaining technical concepts to students at a wide range of ability levels.
- Assessed coursework and quizzes across multiple programming modules over 13 months.

Backend Developer Intern, T-Rupt (Maslak, Istanbul)

Jul 2024 (1 Month)

- Built a Java Excel import and export tool to automate data transfer.
- Developed a Spring Boot REST API, packaged it with Docker and wrote OpenAPI documentation to support integration.

Software Engineer Intern, Ordinatum (Remote)

Aug 2023 - Sep 2023

- Built and queried Microsoft SQL Server databases for healthcare software and contributed to automation and machine-learning tasks.

VOLUNTEERING

Management Team Member, Isik University Cyber Security Society

Jun 2022 - Feb 2023

- Helped align strategy and operations for the university cyber-security society.
- Organized events to support collaborative learning and networking.
- Encouraged knowledge sharing and collaboration among members.