

Özgün ELPEK

Software Engineer



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I am an experienced and versatile software engineer with a strong background in developing and delivering high-quality software solutions. With more than 8 years of professional experience, I have a proven track record of successfully contributing to various software projects. I have a strong understanding of software engineering principles, object-oriented programming, and data structures. Throughout my career, I have demonstrated effective collaboration and problem-solving skills, working closely with cross-functional teams to deliver exceptional results. Additionally, I have a passion for computational geometry and computer graphics, which has been a primary focus of my work. I am excited to bring my expertise to new challenges and contribute to cutting-edge software development initiatives. Currently, I am working as a software engineer at TaleWorlds entertainment, well-known for their franchise "Mount and Blade" series.

Technical Profile

- **Programming Languages:** C#, C++, VB.net, Java, Javascript, GLSL, HLSL
- **Frameworks:** .Net, .Net Core, Unity, NUnit
- **API:** WinForms, Win32, Linq, GDI+, STL, OpenGL, Three.js, Google Maps, OpenCV, SignalR, Photon Fusion, DevExpress, Telerik, Azure Functions, ImGui, Dat.gui
- **Platforms:** Windows, Android, Xamarin, PlayFab
- **Storage:** MongoDB, MySQL, AmazonS3
- **Tools:** Visual Studio, VS Code, Git, Slack, Postman, Discord, Figma, AdobeXD, Jira, Confluence, Premake
- **Paradigms:** Object Oriented Programing, Data Oriented Design, Test Driven Development, Event Driven Architecture, REST, GPGPU
- **Area of Interest:** Computational Geometry, Geometry Processing, Computer graphics, UI, GPU computing

Job Experience



Software Engineer | TaleWorlds Entertainment | 2023 - * | Ankara | [TaleWorlds](#)

- Optimized various gameplay mechanics to enhance user experience and improve game performance, alongside streamlining software pipeline architectures to accelerate development cycles.
- Implemented a range of gameplay features based on detailed game designs, focusing on enriching player engagement and gameplay dynamics.

Technologies: C#, C++



Freelance Software Developer | Toptal | 2019 - * | [Toptal](#)

I have been working as a freelance software developer at Toptal since 2019. Below are some of the clients I worked through Toptal

Desktop Software Engineer | Global Data Science Software Company | 2021 - 2022 | Colorado/USA

- Worked on modernization of the large-scale WinForms desktop application UI to have CSS style look and feel for a fortune 500 company
- Collaborated with the senior product manager and UI/UX designers to refine and evaluate the design and identify the limitations and possible approaches to implement the design at each iteration.
- Worked with the product and engineering managers to identify the deliverables, sprint planning, road maps, and test plans.

Technologies: C#, WinForms, Desktop, Unit Testing, Win32 API, Windows, Telerik, Syncfusion, NUnit, UI Automation, Jira, Confluence

Unity Developer | Parkxy Corp Daeda | 2019 - 2020 | New York/USA

- Developed a 3D content viewer app for building apartments from 2D plan views.
- Implemented interactive, editable, and customizable apartment geometry, materials, and assets into the app.
- Runtime asset loading and placement into the world, both in 2D and 3D.
- Integrated GraphQL connections for Unity to communicate with AWS AppSync service.
- Integrated Google Maps API for address selection and address tagging.
- Implemented a fully functional front end from the UI/UX designs.

Technologies: Unity, GraphQL, AWS S3, Google Maps API, AWS AppSync, Figma, Postman



Software Engineer | URoom | 2020 - 2021 | Seoul/SK | [URoom](#)

- Developed a sandbox showroom creation app MVP targeting furniture companies to showcase and sell their showrooms and assets in a virtual reality environment.
- Worked on 3D scanning applications for mobile devices with a ToF camera, both with Google ARCore, and native in-house digital geometry processing algorithms.
- Worked on offline 3D model reconstruction from point clouds for desktops with C++.
- Developed native Android libraries in Java for unity to perform specific tasks.
- Worked on a 3D website builder app for mobile devices that can show content such as images, videos, and PDFs on 3D display objects.
- Implemented UI/UX designs into the front end and connected back-end services for all applications.

Technologies: Unity, Java, C++, .NET Core, ARCore, Geometry Processing, 3D Scanning, Figma, AdobeXD, Postman



Software Engineer | Zibumi | 2019 | Ankara/TR

- Implemented serialization mechanisms for OGC geographic shapes using KML, JSON, GeoJSON, WKT, CSV, and plain text.
- Developed a frequently used KML editor tool to create, edit, and delete geographic shapes on a given terrain using KML specifications. It has the capability of transferring data to and from other GIS software such as Google Earth, and ArcGIS Earth.
- Reimplemented existing tools using a pattern where the core engineering part is separated, and independent from Unity, which is used for UI and rendering only.
- Implemented the bundling mechanism for tools. This gave developers and designers the ability to create UI's automatically, depending on the needs of different clients using different bundles.
- Developed a touring tool where users can take screenshots of different views, and animate the camera between these screenshots with various speed options.
- Worked on a solar energy and insolation simulation tool using compute shaders that boosted the process 300-350 times faster compared to classical CPU approaches.

Technologies: C#, Unity, JSON, XML



Software Developer | Prota Software | 2016 - 2019 | Ankara/TR | [Prota Software](#)

- Created DLLs in VB.NET that implemented structural steel design specifications for the UK, US, Europe, and Turkey. This gave ProtaStructure® the ability to design steel structures.
- Created a tool that was used to generate multiple structural braces between selected regions. This tool increased the productivity of users in complex structures.
- Developed a tool used in ProtaStructure® and ProtaDetails® that was capable of checking the structural capacity of truss members and optimizing the profiles used among given alternatives.
- Created a wind load generator tool for ProtaStructure® and ProtaDetails® that applied wind loads to the desired structure with a single button using UK, US, Europe, and Malaysian standards.
- Implemented OOP principles in the existing codes of a large project to make them clean and properly structured for future extensibility.

Technologies: Asana, DevExpress WinForms, .NET, VB.NET, C#



Structural Engineer | Prota Engineering | 2013 - 2016 | Ankara/TR | [Prota Engineering](#)

- Designed various landmark steel structures in Turkey.
- Developed small programs using Excel and VBA that design and optimize structural steel connections.
- Developed 2D finite element model solvers using MATLAB.

Technologies: VBA, Microsoft Excel, MATLAB

Personal and Educational Projects



Ozgunelpek.com | 2023 - * | ozgunelpek.com

My personal metaverse-like portfolio website. Built with Three.js, Javascript, Html and Css



Clockwork Game Engine | 2023 - * | [Github](#)

A game framework I have been building since March 2023 using C++ 20 and OpenGL. Still has a long way to go, below are the features that it currently supports.

- ECS architecture with multi-threaded support
- PBR materials
- Image based lighting
- GPU broad phase collisions
- Skeletal animations
- Bounding box based frustum culling

bg **Project Warlock** | 2022 |

A multiplayer battle-arena game template me and a friend were working on together. We used Unity, PlayFab, SignalR, Photon Fusion, Azure Functions and set-up a skeleton for a multiplayer game backend supporting:

- Hosted in playfab with dedicated server-client architecture with matchmaking support
- Real-time notifications with SignalR and Azure Functions (match found, chat, friend online status etc.)
- Adding/removing friends (pending friend support)



Vertex Bender | 2020 | [Github](#)

A framework I built for my M.Sc. work and digital geometry processing class using C# and OpenTK, and WinForms. Has the following features:

- Renderer and Editor
- Model loading: .off, .nii, .vol, .pts
- Mesh Analysis: Shortest path, farthest point sampling, average geodesic distance, Iso-curve, gaussian curvature etc.
- Parameterization: Sphere and Disc
- Mesh post processing: Island removal, hole filling and smoothing
- Primitive geometry support: Icosphere, cube-sphere, pyramid etc.
- GPU based real time ultrasound/CT rendering and editing



Distributed Ray Tracer | 2019 | [Github](#)

A cpu based distributed ray-tracer that supports KD-tree for space partitioning made in C++



Accumulation Snow Shader | 2019 | [Demo](#)

A snow shader I built for unity influenced by the snow mechanics in God Of War and Red Dead Redemption 2 Games



OET, Overlapping lattice method Mesher | 2017 | [Github](#)

2D lattice mesh generator that can be used for overlapping lattice method analysis for structures made with C#, WinForms and GDI+

Education



- **M.sc. Computer Engineering** | Middle East Technical University | 2018-2020 | CGPA: 3.90



- **B.sc. Civil Engineering** | Middle East Technical University | 2006-2013



- **Antalya Yusuf Ziya Öner Science High School** | 2002-2006