

# Ezekiel Gutierrez

Software Engineer  
Game Developer

**Links:** Code Samples and Demos

Portfolio - <https://zikipixels.github.io/>

GitHub - <https://github.com/Zikipixels/>

LinkedIn - <https://www.linkedin.com/in/ezekiel-gutierrez/>

YouTube - <https://www.youtube.com/@zikipixels>

**Contact**

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## Skills

- C/C++, Python, Java, C# and FreeBASIC
- HTML, CSS, PHP, and JavaScript
- Unix Shell Scripting and Terminal Navigation
- Git - Fast Version Control
- Cross Platform Development - Linux and Windows
- Speed Optimized Algorithm Implementation (e.g., flow fields, depth sorting, graphics routines, etc.)
- TCP Networking with Windows and BSD Sockets
- Direct Memory Manipulation
- Software Rendering and 3D Geometry
- Graphics Rendering Optimizing (e.g., clipping, LOD(level of detail), etc.)
- Object Oriented Game Engine Design
- Irrlicht 3D Graphics and Game Engine API
- Game Development Tools - Blender, Gimp, Paint.net

## Accomplishments / Development Experience

### Basic Warfare (Computer Game)

[https://store.steampowered.com/app/1213780/Basic\\_Warfare/](https://store.steampowered.com/app/1213780/Basic_Warfare/)

<https://zikipixels.github.io/basic-warfare/index.html>

Published independent game Basic Warfare strategy game to Steam platform. This included the design and development of a custom 3D ASCII(American Standard Code) game engine. Also included the creation of all music, art, and game assets as well as design of strategic gameplay. Game features a custom UI(user interface) library and cross platform networking with Winsock and BSD sockets. Video data compression with custom RLE (run length encoding) algorithm. Pushed through Steam review process and brought from marketing to a financially successful game title.

### Millicent Choi (Computer Game)

<https://zikipixels.github.io/millicent-choi/index.html>

<https://github.com/Zikipixels/millicent-choi>

<https://github.com/Zikipixels/cfbgfx>

Isometric stealth game project developed in C++ using a custom wrapper to interface with rendering functionality. Performed pixel level sorting through direct image memory buffer access. Featured algorithms for fog of war and high speed isometric sorting. Game also features a triggered event scripting system and a highly capable built in real time graphics editor. Code available on GitHub

### Easy Rotoscope (Animation Software)

<https://zikipixels.github.io/easy-rotoscope/index.html>

<https://www.youtube.com/@zikipixels>

Skeletal and rotoscoping animation software. Uses software based image processing for rotoscope painting tools and skeletal animation rendering. Makes use of the Windows API for smooth responsive pen input, multi-display management, and tracing background capture. Follow the YouTube link to watch some demo pixel art rotoscoped animations drawn with it.

### Nothing Buys Happiness (Online Store)

<https://www.nothingbuyshappiness.com/>

NothingBuysHappiness.com is an online store built with PHP, JavaScript, HTML, and CSS. It uses PayPal integration with an IPN listener page for processing incoming orders. The IPN listener page writes orders for the fulfillment program written in FreeBasic. This program then customizes the orders before using libCurl to mail them out with the PostGrid service.

### Narnia The Golden Age (Game Module)

<https://www.indiedb.com/mods/mount-and-blade-narnia-mod>

Led development team for a Mount & Blade Warband module. Communicated the projects vision and coordinated work with team members and contributors. Worked with a Python module system and community development tools to develop new game mod features while building an in depth knowledge of the existing game engine's structure. Has been downloaded by players over 14,000 times across the Steam Workshop and ModDB.

### MathCar (Computer Game)

<https://www.indiedb.com/games/mathcar>

<https://store.steampowered.com/app/2300750/MathCar/>

Developed and published independent game Mathcar to Steam platform. Mathcar is an educational math racing game designed to assist students with memorization and repetition of math facts. It is cross-platform and can be played on Windows and Linux. Players race against themselves or against other players by solving math problems quickly and correctly.

### The Mysterious Stranger (Computer Game)

<https://zikipixels.github.io/the-mysterious-stranger/index.html>

Isometric city builder RTS(real time strategy) game featuring dynamic map loading and many agent pathfinding using flow fields. Interfaced with SDL's mixer for audio playback. Steam API integration performed through a custom wrapper.

### To Face The Bullets (Computer Game)

<https://zikipixels.github.io/to-face-the-bullets/index.html>

2D aircraft simulation game with a flight physics model and custom designed particle effects engine. Features pixel perfect collision detection algorithm.

## Software rendered 3D projects

<https://zikiputs.github.io/software-voxel-world/index.html>

3D voxel game engine with voxel perfect collision detection and rendering optimizations including LOD, camera clipping, and fogging.

<https://zikiputs.github.io/3d-modeling/index.html>

A polygon modeling program with texture painting and mapping. Built from a custom software rendered 3D engine with support for side by side 3D output.

## OpenGL Cube World

<https://zikiputs.github.io/opengl-heightmap/index.html>

Simple cube construction game with heightmap generated worlds built with OpenGL API.

## Graphics Demos

<https://zikiputs.github.io/isometric-water/index.html> - Physics simulation of water by Euler integrator.

<https://zikiputs.github.io/fireworks/index.html> - Configurable fireworks graphics demo with motion and tiling blur.

## Inventory Software

Developed and maintained custom inventory management software with barcode indexing and pricing assistance. It also featured POS(point of sale/cash register) functionality.

## Employment History

### FDM – Contractor with Russell Investments

Worked remotely in an agile team environment on back and front end development for Russell Investments main website and tools. Documented and designed features in the C# ASP.NET Framework using Jira, Confluence, and Microsoft Teams to collaborate.

**09/2022 - 11/2022**

Talihina, OK

### FDM – Software Developer Trainee

Application development training for Java and C# using unit testing and mocking. Other training included SQL, Git, UML, Shell Scripting and OOP principles and practices.

**05/2022 - 08/2022**

Talihina, OK

### Bog Iron Games – Self Employed Game Developer

Developed original game titles and graphics rendering engines with low level programming in FreeBASIC and C/C++.

**12/2018 - Present**

Fort Worth, TX

## Education and Certifications

Advanced Mathematics w/ Trigonometry  
C for Everyone: Structured Programming  
Saxon Physics  
Logic I & II

Python for Data Science, AI & Development  
Python Project for AI & Application Development  
Introduction to DevOps  
Introduction to Agile Development and Scrum

**High School**  
2013 - 2017

**GPA: 3.65**

## Languages

French - Limited working proficiency  
English - Native or bilingual proficiency

Spanish - Limited working proficiency  
Korean - Elementary proficiency