

# Herbert Elwood Gilliland III

Graphics and Gaming Software Architect, Product Developer,  
Scientist, Author, Artist and Entrepreneur

Seeking a great place to be creative

 [github.com/h3rb](https://github.com/h3rb)  [github.com/LAGameStudio](https://github.com/LAGameStudio)



## Work experience

### Senior Software Engineer

Jan 2021 - June 2024

#### Bohemia Interactive Simulations

“Serious Games” company focused on premier military training and battlefield simulation for defense, partnered with NATO allies. Lead projects as an individual contributor and as a team manager.

Designed templating language, and overall application, wrapping TerraTools for use with ground-up-built “Portable SAAS” application, allowing work automation of custom TerraTools-related geospatial data processing workflows for whole-earth mapping, to provide scenario data for VBS (Virtual Battlespace), performing the roles of architect, implementer of UI and backend for a network scalable multi node and multi-user geospatial terrain generation suite, using Cesiumjs, LAMP, HTML/CSS, jQuery, Javascript, PHP for Windows, C++, Python, as a portable, installable.

TerraTools low-level and node development in C++ WINAPI (Visual Studio 2017/2022). Transformative, multi-year effort to update source code from 1986 VAX C standards to modern Visual Studio 2022 C++; API architect, developer; deep code refactoring on sprawling legacy applications.

Primary engineer on STEWS Middleware, a scalable graphics-related API development for automation of geospatial services implemented in Docker, Kubernetes, Linux, REST via Swagger/Flask (Python); GNU Parallel, python multithreading, streaming services, GDAL, GeoTiff, GeoJSON, Wine, Cesium, TerraExplorer Pro (third party integration). Documentation. Tutorial development for offloading to clients as an open source solution.

Mentor and generalist, C++ developer. “Simplified” Agile scrum environment with rituals. Mentoring of “GIS analyst/database developers” for TerraTools, direct customer engagement for technical support with highly secure offline and detached-LAN environments (SHB). Use of Miro and Draw.io, exposure to QGIS, ArcGIS, Cesium, MapBox, WinBox. Shipped multiple deliverables to ARA, Maxar. Received DOD CUI Handling Certification.

### Lead Graphics Architect / Software Lead: Poser July 2017 - July 2019

#### Smith Micro Software Inc.

Lead Developer and Lead Graphics Architect of the Poser product line for 3D Character Art and Animation as part of the Smith Micro Graphics division. Position included occasional travel to Braga, Portugal, and working through telepresence in Braga, Belgrade, and Alisa Viejo, CA.

Lead of the “Poser” and “Poser Pro” products, managing and extending a tremendously complicated multi-platform 30-year-old C++ source code in Visual Studio versions 2013, 2015, 2017, and xCode 6.4 (MacOS), leveraging both SVN and git, for a graphical desktop application wrangling 100+ third-party libraries as part of a multi-product suite including multiple add-ons, including a bridge via the GoZ SDK (ZBrush); UI development using XML and wxWidgets, including custom widgets, end-user-facing UI views and graphics libraries; maintained a Python exposed C++ API and monolithic SDK.

Main contributions included the development of a 3D paths system for controlling the animation of objects and an extensive set of visual particle effects. Consulting on 3D content like human figure designs, marketing, tutorials, and documentation. JIRA with Support and QE teams based remotely in Virginia and Serbia. Initiator of

## Portfolio

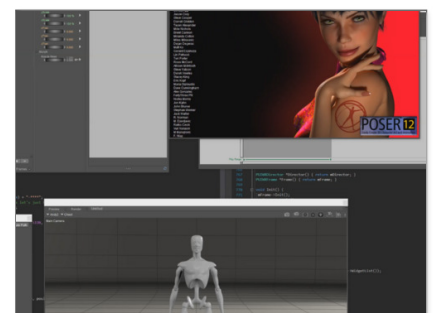
Below are some hand-picked images showing off various aspects of my more creative graphical projects



OWT STEWS and TerraTools (BISim)



Web Tilemap Editor in Pixi.js



Poser 11.1, 11.2 and 12 Lead

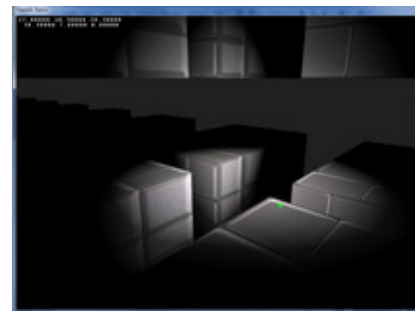


3D Printing Retail System

efforts to move 1000 Adobe InDesign pages of documentation to a Confluence Wiki, including vetting of plugins.

Build automation scripting using Jenkins, Ant, msbuild. As Lead Graphics Architect, responsible for the creation of class block diagrams, user workflows, analysis of existing systems, and thousands of bug reports. Customer-facing representative on user forums.

Secondary project "Redux" involved explorations into Qt5 and OpenGL (with GLSL) in C++ initially constructed using Qt Creator 4.8.0 and eventually the Qt Plugin for Visual Studio. Lead architecture of an entirely new version of the application based on the proprietary NVIDIA GameWorks SDK to bring modern sensibilities to an aging product line. Designed extensions system enabled by the JSON format for describing UIs, widgets, and lead developer and documenter of a C++ / Javascript bridging API for third-party authoring of extensions that control and manipulate 3D objects, data structures, and internal application automation.



GLSL Shaders



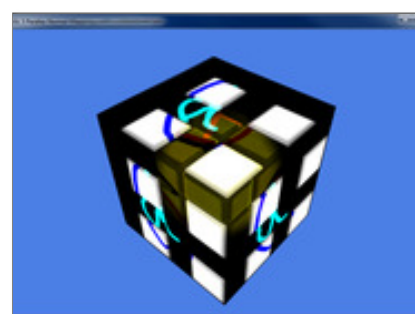
Bloomfield BLINK Dashboard

## Director of Software

2014 - 2017

### PieceMaker Technologies Inc.

Lead software developer and department founder for a 3D printing-on-demand startup. Instilled various values into the company and provided insight beyond software into business operations, hiring practices and team-building. Managed over 1M lines and authored more than 250k lines during tenure. Position began as a User Interface developer using WebGL to create product mock-ups to assist fundraising at early stage. Licensed personal work in a ground-up custom OpenGL video game engine (for Windows, in Visual C++) to the company, then built a software-driven experience on top that won awards including the Best in Toy Fair 2016 from Popular Science. Developed complex cloud-based systems for providing real-time metrics using LAMP stack, tied into a multi-device deployment integrating 3D printers, Windows PC Kiosk with WinTouch device, Ingenico card reader hardware and 3rd party middleware for handling SMS. Lead IT deployment, cloud infrastructure initiatives and purchasing for IT.



OpenGL Parallax

## Lead Software Engineer

Sep 2019 - July 2020

### Bloomfield Robotics Inc.

Spearheaded initial development of customer-facing dashboard for BLINK camera, as well as internal portals for intranet. LAMP + Bootstrap + jQuery + AdminLTE; Focused on UI, statistics, charting, reports, image and data analysis. Build initial data infrastructure for edge-to-cloud automation; generating metrics to help industrial growers use a prototype microscopic camera for agriculture. Managed a small team overseeing web, mobile, on-device IoT and AWS. Built out a team of software developers with a focus on customer satisfaction, iterative design and robust SDLC practices. Back-end automation using S3, C++ / MySQL Connector / AWSSDK Cpp



LAMP

## Web Developer

2013

### Opus One Interactive

Consultant and developer of a CodeIgniter-based contract management software for the music industry.

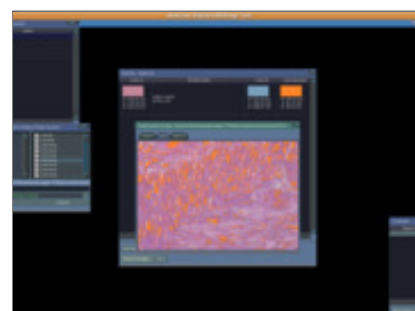


Image Analysis

## Developer (Contractor)

2012 - 2013

### Garrigan Lyman Group

PHP developer under contract developing sites in Drupal, Wordpress and others for Fortune 500 and Fortune 100 companies.

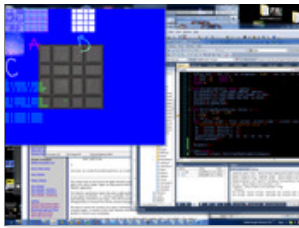
## Contributor

2008 - 2011

### Ecere Corporation

UA/QA position developing a programming language and SDK. Aside from consulting on the eC language and its features, while reporting bugs and issues, Herb developed the Open Art Engine component that enabled functionality for time-based interactive animation with motion tween. Other features included an OpenAL class framework for





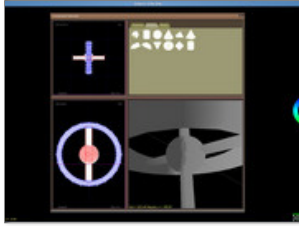
Self-made game engine



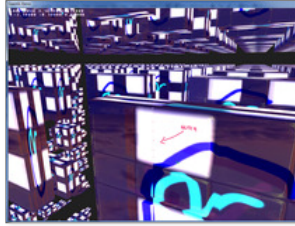
Ganos LLC



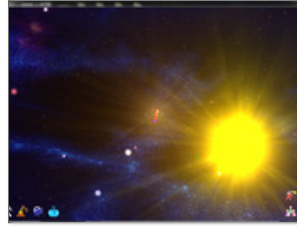
CPU Particles



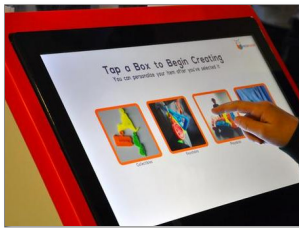
3d Modeling (libagar)



WorldShader (GLSL)



2.5D engines



Retail Customization UI



Best in Toy Fair 2016



PieceMaker Technologies



Tomorrow Lab @ TRU



3D Printing Retail



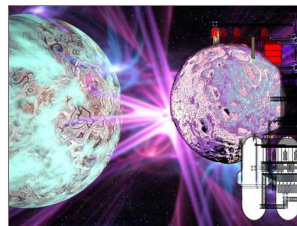
Earlier Version



PieceMaker @ Toys-R-Us



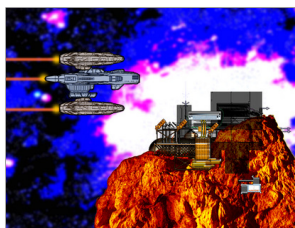
Turtle Power



Greenlit Projects



Team-building



Lost Astronaut . com



Indie Game Dev



Python on Raspbian



2D Artist



@LAGameStudio