Evan Bertis-Sample

(941) 879-7687 | esample21@gmail.com | evanbs.com | GitHub | LinkedIn

EDUCATION

Northwestern University | Evanston, Illinois — Expected June 2026

BS, Computer Science | Minor, Data Science & Engineering — GPA: 3.6

Relevant Coursework: 3D Computer Graphics, Game Development, Database Schema Design, Human Centered Design, Transmission Protocols (TCP, UDP), Wireless Protocols for IOT, API Design, Data Structures & Algorithms, Social Networks Analysis

TECHNICAL SKILLS

Programming Languages: C#, C++, C, Python, SQL, HTML, CSS, JavaScript, MATLAB, GLSL, HLSL
Tools/Frameworks: Unity, WebGL, Django, GitHub Workflows, HTMX, AWS, Amazon S3, Amazon RDS, EC2, Elastic Beanstalk
Productivity: Git, GitHub, GitHub Workflows, Agile, Jira, Confluence, Notion, Microsoft Office, Slack

EXPERIENCE

Northwestern Buffett Undergraduate Research Fellowship — Evanston, Illinois
Unity Developer — June 2024 - Present

- Collaborated with Ozge Samanci to develop an interactive 3D artwork in Unity, blending real-time voice interaction and dynamic environmental effects, creating an immersive, responsive user experience.
- Implemented a 3D text renderer capable of rendering millions of dynamically animated text achieving 100+ FPS on an RTX 3060.
- Applied data-oriented programming techniques and Unity's Burst Compiler to optimize cache utilization and leverage highly optimized native code, increasing performance of the GPU-instanced text renderer by 185%.
- Implemented a custom graphics pipeline within Unity's Universal Render Pipeline, utilizing advanced post-processing techniques such as anisotropic Kuwahara filtering to achieve a visually distinctive watercolor art style.

Northwestern Formula Racing — Evanston, Illinois
Data Acquisition (DAQ) Lead Engineer | Wireless Communication Library — September 2022 – Present

- Spearheaded nine technical projects focused on metric acquisition and analysis in a Formula-style racecar, with a focus on real-time embedded systems development in C/C++ and cross-platform desktop applications in Python.
- Built a continuous integration pipeline with GitHub workflows to ensure firmware configurations meet defined standards during code pushes and hardware deployment, enabling automated validation and minimizing development errors.
- Partnered with Prof. Ilya Mickelson to design an embedded systems curriculum, developing a Django-based website to host lectures, lab materials, and writeups, supporting the education of 25+ new electrical team members.
- Developed CAN-CAN, a Unity game that integrates with a custom game controller hub, designed to complement the curriculum's final project, where students build their own game controllers using the skills learned throughout the course.

Northwestern's Center for Connected Learning — Evanston, Illinois
Full-Stack Web Developer | Morfli | Blog Post — September 2023 – June 2024

- Engineered scalable backend systems for Morfli, a student-driven learning platform used to teach select Northwestern courses, using Django and Python, optimizing data models to handle over 300 students and their interactions efficiently.
- Partnered with PhD student Jacob Kelter to integrate a Google Docs-inspired commenting system into Morfli, fostering improved student-instructor communication and deepening engagement with learning materials.
- Leveraged Django's ORM API to implement polymorphic comment models, creating a scalable backend that efficiently handles image comments, text comments, and threaded replies, while reducing complexity.

Overture Games — Chicago, Illinois
Lead Tools Developer | Intervallic Steam Page | Blog Post — June 2023 – October 2023

- Collaborated with a team of game developers in an Agile environment to develop Intervallic, a commercial music game released on Steam, designed to alleviate burnout in music students.
- Developed a level-generator tool, cutting level creation time from 3 hours to just 15 minutes, saving over 80 hours of work.
- Implemented a hierarchical finite state machine (HFSM) in C# for game state management, accompanied by a GUI-based state debugger, enabling the identification and resolution of 25 bugs and glitches related to level pausing and resetting.
- Established a Level QA process, leading a team-wide effort to ensure levels were fair, balanced, and frustration-free before release.

PERSONAL PROJECTS

WebGL Game Engine | Try the demo! | Source | Blog Post — January 2024 - April 2024

- Developed a fully custom game engine from scratch using JavaScript, WebGL, HTML, and CSS, supporting advanced features like dynamic lighting, multiple cameras, dynamic materials, and seamless import of custom 3D models.
- Architected an entity-component system to enable modular game behaviors, empowering development of game mechanics.
- Integrated an inverse kinematics system using the FABRIK algorithm, providing procedural animations for character movement.
- Engineered a versatile material system with unique fragment-vertex shader pairs for each material, facilitating advanced technical art creation such as vertex-animated black holes, custom skyboxes, and diverse lighting models.