[Robert Brandon Gehr]

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University of Southern California, B.A. Game Development and Interaction Design

Skills

Realtime Application Development: C# | Javascript | C++ | Python | Data-Oriented Design | OOP Design

Frameworks & API Development: Custom Game Engine Frameworks | MLP Library | Procedural Systems

MISC: Self-Motivated | Results-Oriented | Multidiciplinary

Certifications

Foundations of Deep Learning - **NVIDIA, 2025** | NVIDIA Certified Associate, Gen AI & LLMs - **NVIDIA, 2025 - 2027**

Experience

Full Stack Web Developer | Karau Products - *contract* *April 2025 - August 2025*

- Developing and designing fully integrated webstore for boutique hand-made film equipment company.
- Architected full stack solution that best fit the scale and demand of the client, increasing gross profit by 33%
  - Stripe API integration for professional, seamless, stateless on-site checkout experience.
  - NodeJS serverless-function-based solution hosted on Vercel for scalability and ease of maintenance.
  - Vanilla HTML, CSS, JS front-end. Animations, functions for store item filtering and product spotlights.

Unity Developer | Coding Minds *August 2023 - December 2024*

- Developing and publishing advanced research projects in Unity. VR applications, physics simulations, and AI tools.
  - **VR Baseball Training Simulator:** Magnus Effect implementation. Physically accurate baseball pitches and batting - tracking bat velocity, VR native controls.
  - **Sailing Simulator:** Physically accurate buoyancy forces and airfoil fluid forces. Empirical coefficient of lift and drag data based on angle of attack. Accurate force models.
  - **Alzheimer's AI Tool:** Integrated DALL-E into Unity Engine application to display family-curated "memory reconstruction" images in Virtual Reality to Alzheimer's patients.

Computer Science Instructor | Concorde Education *January 2024 - June 2024*

- Teaching foundational programming principles of abstraction, encapsulation, and procedures.

Game Developer | USC GAMES **< View >** *August 2018 - December 2021*

- Collaborated with managers, developers, and artists to implement new features and systems for large-scale game projects:
  - **EMPATH (VR, 2019):** Developed key art assets and implemented them into Unreal Engine.
  - **The Witch List (iOS, 2020):** Developed environment and character assets. Integrated into Unity.
  - **Turtle Town (PC, 2021):** Programmed procedural terrain system; designed gameplay systems.

Projects

Fighting Game Engine | Unity Framework **< View >** *July 2023 - Present*

Custom Engine Extensions and APIs - Data Pipelines | C#, Unity Engine

- Created designer-facing tooling and APIs for fighting game development in the Unity game engine.
  - **Custom Animation System:** developed custom back-end animation system for fighting game hitboxes and a visual custom Hitbox Editor tool, vastly increasing speed and ease of animation development.
  - **Combat System:** Code-free MoveSet creation workflow with custom combo chains. Automatically loads into the combat system on the fly for fast character development iteration.

Home-Made ANN Library and Classifier **< View >** *February 2024 - April 2024*

Home-Made Artificial Neural Network Library | Python, NumPY, Matplotlib

- Developed ANN library from scratch in Python based on Andrej Karpathy's Micrograd engine.
- Implemented ANN abstractions, computation graph, backpropagation algorithm, and loss function.

Graph Visualizer **< View >** *April 2024 - May 2024*

Web Hosted Visualization Tool | Unity Engine, C#, HTML, CSS, Javascript

- Developed visualization software and educational tool for graph data structures and algorithms
- Deployed to live website built on html, css, and javascript
- Created user-friendly GUI to create visualized graph structures and run visualized algorithms on them.

footnotes

- Interests: music, math, education, cinematography / filmmaking, art, PC building
- Recent Reads: Deep Learning, The Ray Tracer Challenge, Science Without Numbers, What is a Complex System?