Eric Isaac

Software Developer | eric.j.isaac@gmail.com | **B.A. Mathematics,** University of Florida

Experience

9/22 – Present   **Design Technologist (Software Developer)**, Gresham Smith
- Led development for custom design software, resulting in viable alternatives for tools costing up to $150,000 per year, $2,800/user, or tools with no commercial alternative.
- Developed system for extracting BIM data from designs, collecting ~50,000 detailed snapshots per year. Over 1 billion records processed in the first 1.5 years of operation.
- Architect for Data Warehousing efforts, led R&D into ML and Digital Twin applications.
- Developed workflows and tools for displaying and understanding trends in detailed BIM data.

9/21 – Present   **Owner, Game Developer**, Publizoid LLC
- Developed iOS arcade game Meltdown, released August 2023.
- R&D into graphics & games technologies on mobile devices.

4/18 – 12/21   **Software Engineer, Simulation**, Allen Institute for Cell Science
- Main developer on the Simularium Project – a web-native 3D visualization system for cell biology.
- Responsible for system architecture, development plan, and implementation.
- Developed multi-threaded C++ server capable of live-streaming simulations via web-sockets.
- Developed C++ API for integrating existing simulation engines into streaming server.
- Developed WebGL front-end capable of displaying 3D simulations in a web-browser.

1/17 – 3/18   **Software Engineer R&D**, Microsoft
- R&D related to performance of the Windows OS on prototype devices.
- Learned about best practices and working with large code-bases.

9/15 – 12/16   **Game Programmer, Gameplay & Graphics**, Immersed Games
- Developer on Tyto Ecology, an ecosystem simulation game released on iOS, Mac, and PC.
- Developer on Tyto Online, an MMO game teaching STEM concepts, on Mac & PC.
- Implemented static mesh instancing system that improved performance 1000x on mobile hardware.
- Implemented features and fixes for multi-threaded animal AI and animation-state-machines.
- Implemented networked game-play features. Regularly performed performance profiling and tuning.

Skills

Primary Skills

C, C++, Vulkan, OpenGL, Vector Calculus, Linear Algebra

Prior Experience
- C#, Python, Unreal Engine
- Multi-threading, Performance Optimization

Education

University of Florida, Bachelors of Arts (B.A.) in Mathematics

Memberships
ACM SIGGRAPH, ACM SIGCHI, IEEE Computer Society

Publications

1. *Lyons, B., Isaac, E., Choi, N.H. et al. The Simularium Viewer: an interactive online tool for sharing spatiotemporal biological models. Nat Methods **19**, 513–515 (2022). https://doi.org/10.1038/s41592-022-01442-1*
2. *Viana, M.P., Chen, J., Knijnenburg, T.A. et al. Integrated intracellular organization and its variations in human iPS cells. Nature 613, 345–354 (2023). https://doi.org/10.1038/s41586-022-05563-7*

Projects

Publizoid Meltdown
https://apps.apple.com/us/app/publizoid-meltdown/id6455427211
An arcade game for iOS, independently developed.

Simularium
https://simularium.allencell.org/
A web-based visualization tool for cell biology simulations.

Tyto Ecology
https://store.steampowered.com/app/453750/Tyto_Ecology/
An education game developed to teach concepts in ecology to young learners.

Tyto Online
https://www.tytoonline.com/
A multi-player online game developed to teach STEM concepts to young learners.

Summary

Experienced software developer with a background in mathematics, games and graphics expertise, and a proven ability to work with multidisciplinary teams. I've particularly enjoyed working in R&D contexts and serious games (education, visualization, simulation).

My attention to detail, technical creativity, and empathetic approach have helped teams consistently deliver high-quality projects. When I'm not at the computer, I can often be found oil painting, playing saxophone, or taking long walks in nature.

Email: eric.j.isaac@gmail.com
LinkedIn: https://linkedin.com/in/ericjisaac
Portfolio: https://www.ericjisaac.com