Tristan James Holub

919-745-9106 • tholub99@gmail.com • tristanholub.com • linkedin.com/in/tristan-h/

SKILLS

PROGRAMMING: C#, Python, Rust, TypeScript, JavaScript, C++, HTML5, CSS, Angular, Java, Bash
SOFTWARE: RenderDoc, Nsight Graphics, Visual Studio, Photoshop, Illustrator, Maya, Blender
PROJECT MANAGEMENT: Agile/Scrum, Git, Perforce, JIRA, Gitlab CI/CD
ENGINES AND 3D: Unity3D, BabylonJS, Bevy, OpenGL, WebGL, WGPU, GLSL, WGSL

WORK EXPERIENCE

APPLIED RESEARCH ASSOCIATES Raleigh, NC OCT 2023 – PRESENT

Staff Software Engineer OCT 2024 – PRESENT

- Serves as the core maintainer for a shared web-based 3D engine, driving architecture decisions and performance improvements.
- Acts as a primary integration partner for downstream developer teams, supporting 3D product adoption and troubleshooting.
- Collaborates directly with product owners to gather requirements, align priorities, convert business requests into clear user stories and shippable engine features, and reduce blockers for technical deliveries.
- Researched and designed a virtual texturing system for our cross-platform engine to enabling efficient rendering of large, high-resolution satellite imagery on level-of-detail terrain.
- Contributed to the design of a new cross-platform engine, assisting with API direction and core behavior planning.
- Streamlined an internal asset pipeline to produce optimized glTF exports from an internal model format, reducing file size and improving web load performance.
- Built an internal sandbox application providing reference examples of 3D features implementations and enabling developer to test their own code with the 3D products.
- Improve the package publishing workflows by integrating semantic versioning validation for CI/CD pipelines
- Profiled engine performance to identify issues, such as memory leaks and state mismanagement, and implemented optimizations to improve runtime stability.

Jr. Software Engineer OCT 2023 – OCT 2024

- Designed and implemented new engine capabilities for multiple downstream products, translating product requirements into maintainable solutions.
- Refactored 3DTileset export workflows to comply with format specifications
- Designed, proposed, and developed a UI system for a web-based 3D engine, which offered customization of widgets that provided controls to unique engine features as well as multiple templated UI components that could be added, placed, and controlled by consuming applications.
- Authored developer guides to document engine behavior and implementation patterns to assist in 3D integration capabilities.
- Coordinated with internal and external teams to establish effective cross-application processes for new feature development.

AMAZON ROBOTICS, West Westborough, MA MAR 2022 – SEP 2022

Software Engineer CO-OP

- Allocated of CIDR resources for new users built on AWS backend services, reducing manual effort during the onboarding.
- Redesigned frontend pages for improved usability and alignment with automated backend flows, focused on providing a seamless experience for customers.
- Coordinated across teams, collaborating on vision and requirements, to design appropriate technical solutions.

ANALYTICAL GRAPHICS, INC. Exton, PA MAR 2021 – SEP 2021, APR 2020 – SEP 2020

3D Graphics - Jr. Programmer/Developer CO-OP

- Enhanced STK3D Engine capabilities by adding support for multiple glTF model extensions, including instanced rendering, mesh optimization, and texture compression.
- Developed new loaders for the i3dm model format, a payload delivered by 3D Tilesets that describes instanced glTF models.
- Implemented KTX2 compression support for Image Based Lighting to improved performance.
- Presented performance improvements and upcoming features in department-wide presentations.

PROJECT EXPERIENCE

SPROUTING SPIRIT: 3D Platforming Game Senior Capstone SEP 2022 – JUN 2023

Lead Tools Programmer, Gameplay Programmer, Perforce SME

- Led development of a custom level editor tool, enabling game designers to efficiently create platforms and decorations using spline shapes. This tool significantly improved implementation and iteration cycles.
- Served as the primary maintainer of the code depot in Perforce, ensuring project stability by managing version control, resolving severe conflicts, and providing technical support to teammates.

EDUCATION

DREXEL UNIVERSITY, PHILADELPHIA PA JUN 2023

College of Computing and Informatics
Bachelor of Science in Computer Science, *Concentration in Game Programming and Development*