Jack Burkhardt

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WORK EXPERIENCE

SIMCASE — Remote, USA
Software Engineer (Contract) | Play Alpha — Feb 2024 – Present
- Built a Web game for managerial students integrating visual novel, job simulator, and roleplaying systems using an event-driven state machine in **Unity/C#** and socket networking in JavaScript
- Adapted a business case study into a **branching narrative** with reactive and emotionally invested characters
- Empowered other designers with tools to analyze dialogue trees for debugging and content distribution at a birds-eye-view
- Created Unity Editor workflows to reduce tedium & human error -- **lowered dialogue creation time from ~5 min to 30 sec**

NASA — Wallops Island, VA
Flight Simulator QA Programming Intern | Exit Presentation — Jun 2023 – Aug 2023
- Validated a flight simulator and safety analysis tool through unit tests, numerical analysis, and runs against previous mission data
- Identified **11 sources of incorrectness & instability** with little guidance, using industry standard tools like GDB and Valgrind
- Rapidly learned and built upon a 20 year old and 15k line C++ codebase by drawing program flow, debugging, and writing docs
- Listened to needs of stakeholder offices, implemented new features, then provided end user instructions and documentation

OVERTURE GAMES — Chicago, IL
Lead Systems Engineer | Steam Page | Blog Post — Jun 2022 – Oct 2023
- Shipped music practice game Intervallic **built on Unity and C#** which reduces burnout among young music students
- Drafted **technical design docs** with diagrams, testing plans, scope contingency plans, then sought feedback from team
- Created **robust level editor tools** utilizing polymorphism and factory methods top enable internal & user generated content
- Built a metrics system which sends data to a REST API and NoSQL database on AWS, providing insight on player engagement that **impacts business direction**
- Spearheaded initiatives for new systems, including improved cameras, microphone pitch detection, and a QA process

MAYFEST PRODUCTIONS — Evanston, IL
Producer | Website — Sep 2021 – Jun 2024
- Planned and executed annual Dillo Day music festival with **12,000+ attendees, 100+ crew members, and 14 artists**
- Oversaw the work of vendors, other crew members, and **resolved occasional crises** to keep the festival on time
- Engaged in **contract negotiations** with talent agencies and vendors to ensure quality service and satisfy logistical constraints
- Documented each year's lessons and **created actionable steps** to improve the attendee experience and team safety

NORTHWESTERN UNIVERSITY — Evanston, IL
Unity/VR Programmer | Blog Post | Demo Video — Jun 2021 – Jun 2022
- Completed VastWaste, an immersive **Virtual Reality** art experience about space debris, working under artist Ozge Samanci
- Successfully pushed for better documentation and **Git** version control to **reduce iteration time from ~2 hours to 20 minutes**
- **Presented work publicly** at prestigious international exhibitions including ISEA2022 and SIGGRAPH2022

TECHNICAL SKILLS

Programming Languages: C#, C++, C, Java, Python, SQL, JavaScript, HTML, CSS, XAML, GLSL/HLSL
Technologies: Unity3D/2D, Unreal Engine, .NET WPF, AWS, Jenkins, FMOD, Blender, Linux
Adobe Software: Premiere Pro, Photoshop, InDesign, After Effects, Lightroom
Productivity: Git, Perforce (user & admin), Microsoft Office, Jira, Agile/Scrum, Trello, Confluence, Technical Writing

EDUCATION

Northwestern University — Evanston, IL
BA **and** MS in Computer Science — Graduated June 2024
- Undergrad GPA: 3.65/4.0
- Master's GPA: 4.0/4.0
- Relevant Coursework: Operating Systems; IP Networking; Wireless for IoT/Embedded; Linear Algebra; Cybersecurity; Communicating CS; Scalable Software Architecture; 3D Animation; Ethics in Computing; WebGL Graphics; Rapid Prototyping