

DAVID J. MARKS

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Senior Software Quality Engineer specializing in graphics, rendering, and spatial computing platforms at NVIDIA, Imagination Technologies, and Autodesk. Proven ability to ensure platform quality through technical depth, strategic planning, cross-functional collaboration, and systematic validation.

KEY STRENGTHS

Platform Product Management: Orchestrated roadmaps for complex graphics platform serving six products across three divisions. Led global teams of 20+ engineers developing solutions addressing competing priorities and varying delivery cadences, while keeping quality and long-term flexibility as foundational principles.

Quality Engineering & Systems Analysis: 30+ years ensuring robust experiences through systematic validation and customer advocacy. Expert at triaging complex failures across multi-layered graphics platforms, synthesizing root cause insights from diverse user feedback, and identifying edge cases at subsystem boundaries. Applies risk-based test strategies and combinatorial sampling when exhaustive coverage is mathematically infeasible.

Graphics & Spatial Computing Foundation: Deep expertise in real-time rendering, GPU acceleration, cross-platform graphics APIs (DirectX12, Vulkan, Metal, WebGPU), and modern spatial visualization standards (OpenUSD, MaterialX, Hydra). Analogous to Vision Pro's spatial intelligence challenges, pioneered early digital twin manufacturing simulations, engineering visualization, and digital set extensions for VFX.

Technical Community & Beta Program Leadership: Built and managed advisory communities serving hundreds of technical users across game studios, VFX houses, and enterprise customers at NVIDIA, Autodesk, Imagination Technologies, and AWS Thinkbox. Established beta programs that served as extended validation teams, translating workflow-specific feedback into reproducible test cases and engineering recommendations.

PROFESSIONAL EXPERIENCE

Autodesk, Inc., San Francisco, CA

2017 – June 2024

Product Manager | Senior Product Owner | Customer Success Engineer

Platform Development & Technical Program Management

- Directed teams developing modern graphics platform built on DirectX12, WebGPU, Vulkan, and Metal, refactoring core infrastructure across multiple legacy and new products for desktop, web, and mobile devices.
- Drove adoption of OpenUSD and MaterialX open standards, enabling seamless asset pipelines between DCC tools and game engines for VFX and game development workflows.
- Successfully released Aurora path tracer as both commercial Inventor feature and open-source Hydra reference renderer, earning community recognition.
- Implemented LUMA-inspired planning framework resolving stakeholder conflicts across divisional boundaries, enabling concurrent delivery of platform features and customer-specific requirements.

Customer Success & Technical Account Management

- Triaged platform API issues from enterprise accounts and escalated recommendations directly to engineering teams, unblocking critical deployments and measurably improving customer satisfaction scores.
- Collaborated with customer teams to understand real-time rendering and asset pipeline workflows, translating requirements into actionable product roadmap items.

Earlier QA role at Discreet/Autodesk (1996-2005) detailed below under Additional Experience

NVIDIA Corporation, Santa Clara, CA

2015 – 2017

Senior QA Engineer, Product Workflow Specialist

- Systematically validated GPU (CUDA)-accelerated, physically-based Iray rendering plugins across multiple DCC tools and cloud solutions ensuring rendering accuracy and near-real-time performance.
- Built community of expert users including game developers and technical artists across AAA game studios, indie developers, architectural visualization, and product design to validate beta releases, resulting in quality improvements spanning several commercial releases.
- Served as technical liaison between engineering teams and customers, translating stakeholder requirements into test scenarios and product improvements for Iray and Mental Ray renderers.

Imagination Technologies, San Francisco, CA

2011 – 2015

Senior QA Engineer

- Validated multiple layers of disruptive hardware and rendering innovations throughout the development cycle including Brazil SDK and Caustic Visualizers (for 3ds Max and Maya) running atop OpenRL API and Caustic Series2 ray tracing acceleration hardware. This enabled parallel development while maintaining functional compatibility.
- Managed product lifecycle from ideation through launch for SketchUp Visualizer, then led transition strategy from paid to freemium model supporting evolving business requirements.
- Collaborated with customers to understand visualization workflows and translate requirements into test scenarios.

ADDITIONAL RELEVANT EXPERIENCE

Mental Images, Inc. (Division of Nvidia Corp.), San Francisco, CA

QA Manager, Lead QA Engineer

- Validated MetaSL shading language and MentalMill shader authoring tools and API critical for performant and physically-accurate material simulation.
- Built automated API test framework using C++, Python, and SilkTest as foundation for continuous validation.

Frantic Films (now AWS Thinkbox Software), Los Angeles, CA

QA/Beta Program Manager | 3D Artist

- Tested Krakatoa particle rendering, Flood fluid simulation, and Deadline render farm management used by VFX studios and game cinematics teams.
- Contributed VFX work to Superman Returns feature film including digital set extension and compositing.

Discreet (now EMS division of Autodesk, Inc.), San Francisco, CA

Beta Program Manager | Software QA Lead, Web Developer

- Led 3ds Max beta program serving hundreds of game developers and technical artists at major studios.
- Built User Advisory Board including game development professionals providing direct input on workflows.
- Developed and deployed custom CMS and beta web portal serving several confidential projects.
- Managed competitive analysis labs for testing workflows across multiple platforms.

Earlier Career - Various employers

CAD, Civil/Survey Technician, 3D Visualization Specialist

- Pioneered robotics and material handling simulations using early PC-based CAD and 3D rendering tools, enabling engineering validation and customer buy-in for complex automation projects.
- Established digital twins and simulation workflows that reduced costly physical prototyping and installation errors in multi-million dollar manufacturing facilities.
- Drove CAD adoption and created visualization teams for civil engineering and infrastructure projects.
- Founded and led local CAD and 3D Studio user groups, building technical communities and knowledge-sharing networks before online forums became commonplace.

TECHNICAL TOOLS AND SKILLS

Game Development & Graphics: GPU Acceleration | Real-Time Rendering | Physically-Based Rendering

Platform & SDKs: Linux | Windows | MacOS | OpenUSD | Hydra | MaterialX | DirectX12 | Vulkan | Metal | WebGPU

Content Creation Tools: 3ds Max | Maya | SketchUp | Photoshop | Substance

Program Management: Jira | Confluence | Productboard | LUMA | Agile/Scrum

Developer Tools: Git | Jenkins | XCode | Visual Studio | Postman | Jupyter | Wireshark | AWS

Scripting and Programming: Python | C++ | bash | MAXScript | MEL | SQL | HTML/CSS/DOM/JavaScript

LLMs & Generative AI: Copilot | Claude | ChatGPT | Topaz AI | Firefly | ComfyUI | Stable Diffusion

EDUCATION

University of Connecticut, School of Engineering, Storrs, CT

Courses toward a Bachelor of Science (BS), Computer Science | Civil Engineering

H. C. Wilcox Reg. Vocational-Technical School, Meriden, CT

Special training in Drafting - Salutatorian (Graduated 2nd of 191 students)

PROFESSIONAL DEVELOPMENT

Conferences: SIGGRAPH (*18x since 1994*), GDC, NVIDIA GTC, Autodesk University, NAB, PyCon, Maker Faire

Training programs: Corporate leadership, LUMA certification, Python, C++, Linear Algebra

Memberships: ACM SIGGRAPH, Long Now Foundation

PERSONAL INTERESTS

Enjoys cinema, photography, gourmet cooking, competitive bowling, playing piano and synthesizers, live concerts and theater, Japanese Taiko drumming, Stoic philosophy, collecting special-edition books, reading, gaming, restoring and preserving vintage pinball and arcade machines, being a Maker, and traveling with wife, daughters, and grandson.

PROFESSIONAL REFERENCES

Available upon request.