

# JAMES FOLK

Principal Software Engineer | C/C++ Systems · Streaming Media (Roku) · Mobile · Game Engines

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## SUMMARY

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Principal software engineer and technical founder with 20+ years building high-performance software across streaming media, gaming, and real-time systems. Led the Roku Video Player used by millions of Comcast subscribers; shipped gameplay for Halo Infinite at 343 Industries; built a proprietary cross-platform C++ engine powering 10+ original games and VR experiences. Deep expertise in modern C++ (11-20), BrightScript/SceneGraph, Python, and iOS/Flutter, with a track record of leading teams, mentoring engineers, and turning complex requirements into robust, scalable systems.

## CORE SKILLS

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**Languages:** C/C++ (11/14/17/20), Python, BrightScript, Swift, Lua, SQL, JavaScript, Java, Dart

**Streaming Media:** Roku SceneGraph, Roku Ad Framework (RAF), SCTE-35, Freewheel, HLS/DASH, RFC 6570 URI Templates, Yobora analytics

**Systems:** Multithreading and concurrency, real-time/low-latency design, high-throughput and highly available architectures, memory and performance optimization, distributed systems

**Platforms & Tools:** Windows, Linux, macOS, iOS/tvOS, Android, Roku, Unity/HoloLens 2, OpenGL ES, CMake, Jenkins, Git, Agile/Jira

## PROFESSIONAL EXPERIENCE

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### Senior Roku Developer | [NBCUniversal](#)

January 2026 - July 2026 · Remote

- Diagnosed and fixed memory issues in the Rooibos unit-test suite that were causing crashes, stabilizing the test framework and significantly increasing test execution speed.
- Integrated Adobe Edge events into the Roku application to track user interactions, expanding analytics coverage for product and marketing teams.
- Removed an unused Promise library dependency, simplifying the codebase and reducing maintenance surface.

### Senior Software Engineer | [Neology, Inc.](#)

July 2025 - January 2026 · Texas (remote/field)

- Designed and developed multithreaded, real-time software for lane-side tolling systems processing millions of daily micro-transactions under strict latency and accuracy requirements.
- Built and maintained high-throughput, highly available systems ensuring reliable transaction processing in production across roadside and back-office distributed subsystems.
- Owned the full SDLC using C++, SQL, JavaScript, and web technologies; supported field deployments and live-environment system integration.

### Principal Roku Developer | [Comcast](#)

February 2023 - July 2025 · Philadelphia, PA

- Led a team of engineers owning the Roku Video Player used by millions of Comcast subscribers, built with BrightScript and SceneGraph.
- Integrated the Roku Ad Framework (RAF) into VOD streaming, writing SCTE-35 signal parsing and a builder-pattern Freewheel ad-URL system that increased advertising revenue.
- Served as technical lead integrating the Roku Interstitial Library into linear streaming, increasing ad revenue by 300%.
- Authored an RFC 6570-compliant URITemplate component library enabling the service's migration from HLS to DASH.

### Founder / Principal Software Engineer | [NJLIGames LLC](#)

October 2010 - Present · Mount Sinai, NY

- Architected and maintain a proprietary cross-platform C++ game engine (Windows, Linux, macOS, iOS, Android) powering 10+ original games and immersive VR experiences reaching thousands of users worldwide.
- Principal developer of the Gospel Stream Roku channel (BrightScript/SceneGraph), distributed through the Roku channel store.
- Apply modern C++ (11-20), OOD principles, design patterns, and STL mastery to deliver modular, performant, maintainable codebases with optimized memory management and multithreading.

### Platinum Team Lead | [Scale AI](#)

November 2023 - November 2024 · Remote

- Led a team of coding experts producing and auditing software training data for AI projects across C++, Python, JavaScript, Java, and SQL; directed recruiting, onboarding, and interviewing for a rapidly expanding expert program.

### **Principal Roku Developer** | [The Church of Jesus Christ of Latter-day Saints](#)

October 2021 - February 2023 · West Jordan, UT

- Led development of the All Saints Channel for Roku (BrightScript/SceneGraph), delivering live and pre-recorded events to millions of users; added resume-playback via the Roku registry and integrated the Youbora SDK for analytics and ads.

### **Project Lead Developer** | [National Institute of Standards and Technology \(NIST\)](#)

March 2022 - November 2022 · Virginia

- Spearheaded a foundational augmented-reality project using Unity, HoloLens 2, and Vuforia to improve first-responder effectiveness, emphasizing usability and human-computer interaction.

### **Senior Software Engineer** | [Warner Bros. Discovery](#)

January 2020 - June 2022 · Remote

- Developed screens and enhanced the event system for the Roku Discovery+ app using BrightScript and SceneGraph.
- Implemented VoiceOver accessibility in the Discovery+ iOS/tvOS apps in Swift, ensuring standards compliance and avoiding costly accessibility litigation.
- Integrated the Kochava marketing SDK and built a Python/Doxygen pipeline generating API docs from inline BrightScript comments.

### **Halo Gameplay Engineer** | [343 Industries](#)

February 2021 - June 2021 · California

- Contributed to Halo Infinite gameplay in C++ and Lua, adding and enhancing gameplay features and resolving gameplay issues for a polished player experience.

### **Game Developer** | [Visual Concepts \(2K\)](#)

January 2021 - August 2021 · California

- Developed in-game features, gameplay mechanics, and systems in C++; conducted bug testing and QA.

### **Lead / Senior Software Engineer** | [Zebra Technologies](#)

August 2019 - May 2021 · Holtsville, NY / London, UK

- Led development of a computer-vision project; refactored a single-threaded native Android CV app into an efficient three-thread architecture and boosted rendering performance with OpenGL ES 2.

### **Software Engineer (Blockchain)** | [Block One \(B1\)](#)

October 2019 - May 2020 · Virginia

- Developed and deployed smart contracts and contributed core blockchain functionality and integration libraries as a C++ engineer on a high-performance blockchain team.

### **Software Systems Engineer IV** | [Envrmnt by Verizon](#)

January 2017 - June 2019 · Remote

- Integrated 3D physics into VR, AR, and 360° video streaming services across five platforms; improved the engine's CMake/Jenkins CI system and built custom tooling for the EvrVault asset-management platform.
- Designed and developed the AR Designer iOS app in Swift and integrated Cognitive3D analytics for VR/AR user insight.

**Earlier roles:** Principal Software Engineer, Green Energy Research (2013-2019) · iOS Developer, OTG Management (2019) · Mobile Software Engineer, CA Technologies (2014-2016) · Software Developer, OpenLink Financial (2011-2013) · Software Engineer, Pitchblack Games (2010-2011) · Game Programmer, Powerhead Games (2006-2010; shipped 7 Nintendo DS/DSi/GBA titles incl. MLB 2K10 and Glow Artisan).

## **EDUCATION & CERTIFICATIONS**

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Doctor of Science, Computer Science (in progress), University of North Dakota

MBA, Business Administration & Management, Strayer University (2022)

B.S., Computer Science, Stony Brook University · A.S., Computer Science, Suffolk County Community College

Certificates: Machine Learning, Columbia Engineering (2019) · Machine Learning with Python · Agile with Atlassian Jira