

ERICA TOMES

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PROFESSIONAL SUMMARY

Senior Software Engineer with 8+ years of experience in systems programming, Windows kernel-mode development, and platform engineering. At NinjaOne, designed Windows kernel drivers using KMDF, minifilter, and WFP for endpoint security and compliance enforcement. At Citrix, delivered patented device-virtualization features and gained significant experience with kernel mode drivers and USB redirection. Strong background in Windows internals, device drivers, IPC, concurrency, and distributed systems at scale. Published storage-systems researcher with a U.S. patent in device virtualization.

TECHNICAL SKILLS

Languages:	C++, C, Python, Java, Kotlin, Bash, SQL
Windows & Kernel:	WDK, KMDF, Minifilter, WFP, Win32 API, WinDbg, ETW, COM, Windows Internals, IDA Pro
Systems & IPC:	Kernel Debugging, Multi-threading, Synchronization, gRPC, Protobuf
Tools & DevOps:	Git, CMake, AWS, Infrastructure as Code, CircleCI, Artifactory
Architecture & Quality :	Client/Server, Low Latency Systems, WHQL Certification

PROFESSIONAL EXPERIENCE

Senior Software Engineer | NinjaOne

2026 – Present

- Designed and prototyped a Windows **kernel-mode driver** and companion user-mode service for a new endpoint security product, implementing **minifilter** drivers for real-time file-system policy enforcement and **WFP** callout drivers for network traffic interception
- Architected kernel-level interception of **process creation** to enforce endpoint compliance policy, hooking system callbacks to evaluate and block untrusted processes before execution
- Implemented the Endpoint Configuration Management product for compliance enforcement, designing a **drift-detection** engine that continuously monitors and automatically remediates endpoint resource configurations across managed device fleets
- Designed **Protobuf** message schemas and **gRPC** service contracts for high-performance IPC between the kernel driver, user-mode agent, and cloud management plane
- Used **IDA Pro** to reverse-engineer **Windows internals**, analyzing undocumented kernel structures and system-call behavior to inform driver architecture and interception strategies
- Bootstrapped the product's C++ foundation from scratch: **vcpkg** dependency management, **Artifactory** binary caching, cross-platform builds on **CircleCI**, and automated **code signing** for secure distribution
- Implemented core endpoint RMM features with focus on **multi-threaded** service design, **synchronization primitives**, and performance-critical I/O paths for real-time telemetry collection

Staff AI Gameplay Engineer | Spliced Inc.

2022 – 2026

- Led architecture of real-time **C++** systems for a networked multiplayer product on Unreal Engine 5, designing server-authoritative state replication with latency-resilient **synchronization** across distributed clients
- Profiled and optimized **multi-threaded** subsystems on performance-critical paths, resolving thread-contention bottlenecks in entity spawning, asset streaming, and **concurrent** game-state updates

SDE II (L5) | Amazon

2020 – 2022

- Designed and delivered large-scale workflow-orchestration and automation services used across AWS products, driving millions of daily task executions across **EC2** fleets with **SQS**, **SNS**, **DynamoDB**, and **CloudFormation**
- Built an automated code-change pipeline that generated commits, opened code reviews, and merged with zero human intervention, eliminating recurring manual toil across the organization

Senior Software Engineer | Citrix

2019 – 2020

- Delivered **4x speed up** in **COM redirection** by profiling the IPC serialization pipeline and eliminating redundant marshaling, directly enabling a **\$1.5M** enterprise contract renewal
- Built a patented **WIA scanner-redirection** feature virtualizing TWAIN/WIA device interfaces across session boundaries (**U.S. Patent No. 11,263,031**); served as SME for **USB redirection** across the virtual channel stack
- Debugged cross-layer platform defects with **WinDbg** and kernel-mode tracing across **kernel drivers**, COM servers, and **UWP** containers in the Citrix virtualization stack

EDUCATION

University of Louisville

2017 – 2018

Master of Engineering, Computer Engineering & Computer Science

University of Louisville

2013 – 2017

Bachelor of Science, Computer Engineering & Computer Science

PATENTS

E. Tomes, et al. "Image Acquisition Device Virtualization for Remote Computing." *U.S. Patent No. 11,263,031*, Jan. 2022.

PUBLICATIONS

- [1] E. Tomes and N. Altıparmak. "A Comparative Study of HDD and SSD RAIDs' Impact on Server Energy Consumption." *Sustainable Computing: Informatics and Systems*, 2018.
- [2] E. Tomes, E. Rush, and N. Altıparmak. "Towards Adaptive Parallel Storage Systems." *IEEE NAS*, 2017.
- [3] E. Tomes, L. Hall, B. Harris, and N. Altıparmak. "Big Data Aware VM Placement in Cloud Data Centers." *Sustainable Computing: Informatics and Systems*, 2017.