



NICK KRZEMIENSKI

Engineering Lead, Video Innovations @ fuboTV

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SUMMARY

With a robust foundation in software engineering management and a technical leadership spanning over 12 years, I have continually pushed the boundaries of mobile and web development. My journey took a pivotal turn in 2016 when I ventured into the OTT video space, allowing me to delve into nearly all facets of streaming media.

My passion led to the development of a groundbreaking shared Swift library for iOS/tvOS apps, which innovatively separated the UI from the player, enhancing player scalability for both linear and VOD content.

As the manager for the tvOS and Roku platforms at fuboTV, I spearheaded the significant pivot towards "Connected Devices," guiding these platforms through a transformative evolution. By 2018, my role further expanded to Engineering Lead of VOD Encoding and Operations. In this capacity, I was at the forefront of bringing the VOD video encoding and packaging pipeline in-house. My achievements in this role are highlighted by my pioneering efforts to enable our VOD platform to support both HEVC and AVC formats, significantly enhancing content delivery network flexibility and efficiency. This dual-format support ensured that we could deliver the highest quality video content across a wide range of devices and network conditions, optimizing streaming capabilities and improving the end-user experience with seamless, high-definition viewing.

My responsibilities also encompassed intensive FFmpeg research, mastering ISO standards, crafting encoding workflows, optimizing AWS management, developing Docker containers, and driving software enhancements to elevate the streaming experience. These efforts collectively contributed to setting new industry standards for video quality and accessibility.

In 2022, embracing the role of Engineering Lead of Video Innovations, I focused on the forefront of server-side multi-view systems development, underscoring my commitment to the future of video streaming. The years 2023 and 2024 marked a significant advancement in my career as I led the development of a just-in-time transcoding and packaging playout solution for HEVC files. This initiative revolutionized streaming efficiency and quality, demonstrating my dedication to innovative video delivery solutions.

My foundational ethos, deeply rooted in my honorable service with the United States Marine Corps as an Infantry Squad Leader with the rank of Sergeant, has instilled in me a profound sense of duty, leadership, and commitment to excellence. This experience has been pivotal in shaping my approach to overcoming challenges and leading teams to success in the tech industry.

For a more in-depth look into my professional contributions and innovative endeavors, I invite you to visit <https://awesome.video>.



WORK EXPERIENCE

ENGINEERING LEAD, VIDEO INNOVATIONS FUBOTV INC

2022-03 - 2024-06

- Spearheaded the development of server-side multi-view systems in 2022, integrating multiple video feeds within a single player interface, revolutionizing content consumption and enhancing viewer experience.
- Engineered a just-in-time (JIT) transcoding and packaging to HLS solution from 2023 to 2024, optimizing it for HEVC source files. Deployed in Kubernetes (k8s), significantly enhancing system scalability, fault tolerance, and operational efficiency across video streaming operations.
- Ensured high availability and service reliability through meticulous management of containerized applications, dynamically adjusting resources with horizontal pod autoscaling to meet fluctuating demands.
- Implemented persistent volumes and stateful sets for effective data management, pivotal for the success of the JIT transcoding workflow.
- Collaborated with cross-functional teams to gather requirements and design scalable and efficient solutions, ensuring seamless integration with existing systems.
- Conducted thorough testing and debugging of code, identifying and resolving issues promptly to minimize downtime and improve system performance.
- Maintained clear and concise documentation, facilitating ease of understanding and knowledge transfer among team members.
- Stayed updated with the latest technologies and industry trends, continuously enhancing technical skills and knowledge to drive innovation and deliver cutting-edge solutions.

ENGINEERING LEAD, VOD ENCODING & OPERATIONS

FUBOTV INC.

2018-02 - 2022-02

- Led the encoding, packaging, and operations of VODs, overseeing the delivery of approximately 500 hours of assets daily. Implemented a system that efficiently received content, transcoded it to optimal bitrate ladders, and packaged it in both HLS and DASH formats with DRM protection.
- Leveraged AWS Spot Instances and a container-based infrastructure to significantly reduce transcoding and packaging costs by approximately 70% compared to on-demand cloud compute.
- Engineered multiple codec streaming with DASH (h.264, h.265, vp9) and HLS (h.264, h.265) assets for 4K content, ensuring optimal playback quality and compatibility across devices.
- Enabled multiple codec assets for non-4K content on capable devices, maximizing playback performance and user experience.
- Utilized playback analytics from players to optimize the quality of experience (QoE) for VOD playback, continuously improving the streaming performance and user satisfaction.
- Built and maintained a serverless CDN Edge to ensure seamless playback across all OTT devices, considering each platform's decoding capability, device screen features/resolutions, and enabling the rollout of new codecs.
- Parsed and validated CableLabs metadata for received assets, ensuring proper ingestion into the content graph and maintaining data integrity.
- Designed and implemented a live-to-VOD generator, enabling DRM-protected playback of content from linear streams in both HLS and DASH formats based on a schedule of assets. This enhanced the availability and accessibility of content for users.
- Prioritized accessibility by enabling the generation of sidecar files for packaging from any mpeg2 CE-608 or CE-708 received source content, ensuring compliance with accessibility standards.
- Implemented robust alerting and escalation policies for key failure points in the pipeline, ensuring prompt response and optimal performance of the system.

ENGINEERING MANAGER, APPLETV & ROKU FUBOTV INC.

2018-02 - 2018-11

- Hired, managed, and mentored a team of 10 software engineers in the NYC office
- Responsible for both fuboTV's AppleTV & Roku teams' product roadmap and engineering goals
- Contributed code to both Roku & AppleTV teams as an IC, while managing
- Designed and implemented workflow automation for both teams integrating with Jira
- Designed and developed a testing harnesses to run complex automation suites on an in-house device farm
- Managed and built relationships with both Apple & Roku partner engineering teams
- Helped build and deliver the first ever UHD/HDR10 live feed for OTT, during World Cup 2018

SOFTWARE ENGINEER, IOS

FUBOTV INC.

2017-05 - 2018-02

- Rewrote the fuboTV's Swift player framework from the ground up
- Response for the decreased usage in 3rd party vendors SDKs
- Designed and measured overall video quality experience
- Leveraged all of Apple's AVFrameworks
- Built & designed fuboTV's In App Billing system to allow for customers to subscribe via iTunes and Roku

PRINCIPAL DEVELOPER & FOUNDER

KODA LABS INC.

2013-10 - 2017-05

- Hired, managed, and mentored a team of 3 developers and various contractors in completing over 15 successful client projects.
- Managed all client projects using agile software methodologies and various project management tools.
- Utilized Apple's latest iOS APIs and frameworks to ensure the best user experience on various client's apps.
- Implemented all projects using a MVC architectural pattern ensuring production level code bases.
- Designed, architected and developed numerous custom API's leveraging AWS that communicated to various front ends.
- Integrated WebRTC technologies in numerous apps creating video and text chat capabilities for end users.
- Aided in the marketing of mobile applications for iOS and Android platforms utilizing Facebook Ads and Google Adwords.
- Built & designed 4 different games in Unity3D that had user bases well over 1 million users.

SQUAD LEADER

UNITED STATES MARINE CORPS RESERVE

2008-12 - 2015-01

- Directly responsible for the actions and well being of Marines under my command.
- Coordinated the movement and employment of various weapons systems within my squad to complete missions and patrols.
- Gained a proficiency for giving and receiving orders under stressful environments as well as maintaining a military bearing at all times.
- Developed leadership while leading my team by adhering to the three core values of Marine Corps; Honor, Courage, and Commitment.
- Reached the rank of Sergeant in less than 4 years.

FOUNDER

MANAGING DIRECTOR & CO

2011-10 - 2013-09

- Lead a team of 4 developers and 2 graphic designers in completing over 20 successful client projects.
- Responsible for executing projects for Disney, Sky Rocket Toys, Wicked Cool Toys, SuiteRetail, Ingk, Simplexo, among numerous other prominent clients.
- Designed and developed complex data flows for a mobile POS system built on Netsuite's cloud.
- Developed a plush toy connected to an iOS & Android app that sold in Toy's R Us.
- Managed a product development process with factories in China ensuring the integration of our client's custom built technology.
- Worked in Sketch to design user interfaces and branding for clients and then translated those designs to functional iOS apps.
- Utilized iBeacon and hardware technologies (e.g. Estimote, etc)
- Used SOAP and JSON based web services to integrate client applications with server

MOBILE DEVELOPER
SHODOGG
2011-12 - 2012-09

- Developed innovative properties centering around dynamic delivery of media content from mobile devices to web enabled screens.
- Reverse engineered an iOS application that served as an HTTP server on a LAN.
- Worked with streaming protocols for video such as HLS and byte level data from video codecs such as H. 264
- Created an iOS Framework for other developers to use in their applications.

OPS INTERN
ARGUS INFORMATION AND ADVISORY SERVICES
2011-02 - 2011-11

- Imported and mapped financial data with SQL commands
- Worked with a team of developers to benchmark and report financial data.



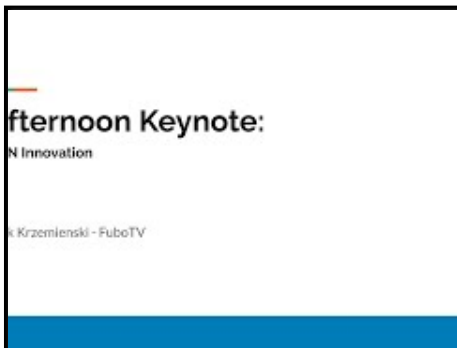
EDUCATION

BACHELORS, COMPUTER SCIENCE
IONA COLLEGE
2008 - 2012



PORTFOLIO

Presentations & Open Source



USEFUL LINKS

[Stack Overflow](#)
[Twitter](#)
[Github](#)
[Teaching Vets to Code](#)