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203.247.0623

# Matt Tretin

415 Curch Street St.  
Apt. 2207  
Nashville TN, 37219

I'm an experienced (15+ years) engineering leader, systems architect, and software engineer. I've been trusted in key roles from individual contributor up to vice-president focusing mainly on going from "zero to one" when building new software solutions, new teams, new processes, and new culture. Most of my career has been spent developing cloud based micro-service architectures to create innovative video distribution platforms and user applications.

In both engineering and management I believe in data based decision making by identifying key KPIs, formulating hypotheses, and adjusting quickly based on an honest appraisal of the results. My experience at the leadership level has yielded the best outcomes when teams are empowered with the confidence and knowledge to make correct autonomous decisions 80% of the time while ensuring positive relationships exist to keep everyone happy the other 20% of the time.

I am also a passionate ArchLinux user and GNURadio enthusiast.

*Seeking any and all roles with cool problems to work on. References available upon request.*

## Patents

USPTO 10,440,367 - Systems and Methods for Adaptively Encoding Video Streams  
USPTO 10,419,786 - Systems and Methods for Securely Generating Live Previews  
CA3055711A1 - Systems And Methods For Generating Individualized Playlists - PENDING  
USPTO 16/836,700 - Fast Video Stream Startup

## Technologies

*Languages:* Go, Java, C, LUA, JS, Bash, Python, Lisp, OCaml

*AWS:* EC2, Lambda, S3, SQS, SMS, SNS, RDS, ElastiCache, VPC, Route 53, CloudWatch, CloudFormation, CloudTrail, EMR, Glue, IAM, KMS, ECR, EKS, ECS

*GCP:* Compute Engine, Datastore, Cloud Storage, GKE, BigQuery, Cloud Load Balancing, Cloud Monitoring, Pub/Sub, IAM, Container Registry, G Suite

*Databases:* MySQL, Postgres, MongoDB, Redis, Cassandra, Sleepycat/Xmldb, Jena, SQLite, DynamoDB

*Queueing:* Kafka, NATS, RabbitMQ, ActiveMQ

*Management:* Terraform, AWS Secrets Manager, Concourse, Vault, Zookeeper, Chronos

*Data:* Hadoop, Spark, MWAA, Athena, Tableau

*Software:* IDEA Suite, JIRA (usage, management, and configuration), Confluence, Pivotal-Tracker, Emacs, Vim, L<sup>A</sup>T<sub>E</sub>X

*GNU/Linux:* Arch, Debian, Ubuntu, LFS

*Cybersecurity:* SonarQube, Checkmarx, sqlmap, BurpSuite, ZAP, Maltego/Paterva, Metasploit, Kali Linux, John The Ripper, aircrack-ng

*Video:* Iconik, Hybrik, Amagi, MediaTailor, Datazoom, Conviva, NPAW, ffmpeg, AVPlayer, Exoplayer, Shaka

*CDN:* Akami, Fastly, CloudFront

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May 2022 - Present **CanelaTV** New York, NY

**Vice President of Engineering**

As VP of engineering I'm responsible for the overall end to end architecture for all systems, end user application development, technology strategy / vendor selection, all internal SDLC process, as well as IT workflows and practices for the entire organization. Managing both the engineering team and how we interact with stakeholders who are new to technology development has been a key component of helping migrate Canela from a company that purchased technology to a company that develops it.

- Principal manager for the complete re-development and re-launch of all CanelaTV applications and internal systems.
- Architect for the entire CanelaTV technology stack from video ingest, through back-of-house processing, to end-user applications and subsequent data collection and processing.
- Built Platform Engineering, Data Engineering, Video Engineering, Devops, QA and IT teams starting at zero and growing to almost 30.
- Introduced agile and SCRUM workflows to the organization powered by digital processes.
- Introduced a quarterly planning process to achieve both business goals and manage stakeholder expectations.
- Introduced a KPI based prioritization methodology to ensure that new projects had a testable expected business value.
- Architect for the IP network design, storage systems, and workflow solutions for production studios in Mexico City and Miami.
- Conduct regular one-on-ones with both direct reports and senior stakeholders throughout the company.
- Managed a number of difficult interpersonal and HR issues between key members of staff as the organization grew.
- Introduced a basic cybersecurity footprint including SSO for all web based applications, password managers for all employees, and device level management and tracking for IT.

Oct. 2020 - May 2022 **MongoDB** New York, NY

**Director of Engineering**  
**Sharding, Service Architecture**

As Director of Sharding and Service Architecture I managed the team leads responsible for maintaining and implementing: the RAFT consistency implementation, inter-node communication and security, as well as all lower level database operations such as interfacing with the file system and interfacing with OS scheduling. While this role was mostly people management I learned a lot about the way technical projects that straddle the boundary between the academic and the practical need a very nuanced approach.

- Led the planning and grooming process for a new feature to re-shard a dataset across an arbitrary number of nodes to ensure we were able to showcase it at MongoDB World and deliver to customers when promised.
- Introduced a and scalable hiring process I developed at FuboTV which resulted in the most new hires in the companies history for these teams.
- Learned to manage passionate and often acrimonious debates between multiple ICs who all considered themselves subject matter experts.
- Introduced the concept of "capacity planning" to help ensure that work teams were committing to was achievable in order to generate realistic timelines around projects.
- Managed several demanding personnel issues related to WFH mandates and poor performance during the pandemic.
- Was able to hire and coach junior engineers to find success in this group, which had traditionally been a significant issue for these teams.
- Conducted regular one-on-ones with direct reports and semi-regular skip level one-on-ones with ICs.

Jul. 2020 - Oct. 2020 **MongoDB** New York, NY

**Lead Engineer - Service Architecture**

I only held this role for a short period of time. After providing insight and feedback about issues my VP was facing I accepted a director role to help take on a management load that was too great for them.

- Introduced planning poker as an estimation tool for the team.
- Helped junior project managers learn to navigate a highly technical set of features.
- Helped refine our internal JIRA processes to be useful to both senior management and the team.

Apr. 2019 - Jun. 2020 **Pluto TV** New York, NY

**Engineering Manager Video Systems**

I managed 3 engineering teams of 4-6 people each and reported directly to the VP of Engineering. My teams were responsible for all transcoding, video streaming, and ad insertion operations.

- Design and PoC of next-generation CMAF video ingestion workflow and JIT packaging workflow.
- Designed DRM, 4K, and multi-ABR ladder solutions.
- Designed and launched new way to serve VOD assets with HLS. The company sought a patent on this work.
- Introduced StatsD and SignalFX to monitor all video services 24/7. Setup monitoring and alerting with Pager-Duty.
- Refactored approach to error handling and logging to uncover dozens of long existing unknown defects.
- Oversee the management of over 700 EC2 instances running more than 3.5K containers.
- Transitioned the entire video stack to ephemeral, immutable infrastructure with Terraform.
- Introduced the concepts of service timeouts, back-offs and operational degraded state, to prevent cascade failures.
- Rebuilt CI/CD workflows to enable automated deployments.
- Built out all 3 teams starting with only 1 employee.
- Hold regular one-on-ones with all team members, review PRs and set coding standards.
- Plan road-map initiatives, sprints, and epics. Work with product leads from other teams.
- Facilitate all regular agile meetings: scrum, planning, grooming, and retrospective.

Sep. 2018 - Apr. 2019 **Integral Ad Science** New York, NY

**Team Lead & Manager OTT Measurement**

I managed a team of 6 engineers reporting to a Director of Engineering. My team was responsible for designing, building, and launching IAS's OTT ad-verification and measurement solution.

- Successfully applied agile principles to bring an out of control project on track to meet a hard customer deadline.
- Worked with the data science team to create a new fraud detection algorithm appropriate for server side ad beaconing.
- Was the principal architect for migrating all the teams services from on-prem infrastructure to AWS.
- Hold regular 1-1s with all team members, and worked with a scrum master to facilitate all agile ritual meetings.
- Worked with a product manager to plan epics and road-map initiatives according to SAFe.

Oct. 2016 - Sep. 2018 **FuboTV** New York, NY

**Manager Video Quality, Switching/Signaling, Video Operations**

I managed 3 teams of 4-8 engineers each reporting directly to the CTO. My teams were responsible for 24/7 ingestion and per-chunk indexing of over 1500 HLS video feeds, per-user playlist generation, mid-stream video switching, scheduling systems, and enforcing geofencing and blackout restrictions.

- Was principal architect and lead engineer for all video services company wide.
- Implemented in-stream HLS switching, geo-fencing, and blackout restrictions.
- Implemented cloud DVR system.
- Implemented SCTE224/SCTE35 based signaling and switching system to integrate with 3rd party systems defining stream availability.
- Implemented in-house switching data systems to define geographic and time based limitations on stream availability.
- Implemented a suite of QA tools to diagnose, triage, and reproduce video stream issues.
- Implemented a GoLang wrapper around core FFmpeg functions to easily use the tool as part of backend services.
- Implemented system to securely generate preview streams for inclusion in "live" advertisements for the company.
- Created 30+ hardware devices to down-link OTA (over-the-air) channels and securely back haul them to FuboTV systems for distribution.
- Created load tests capable of generating about 500K concurrent users worth of load and ensured all systems could sustain it.
- I was the first video engineering hire, built out 3 teams with about 15 people underneath me.
- Hold regular one-on-ones with all team members, review PRs and set coding standards.
- Plan road-map initiatives, sprints, and epics. Work with product leads from other teams.
- Facilitate all regular agile meetings: scrum, planning, grooming, and retrospective.

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Jun. 2015 - Aug. 2016 **Perka** New York, NY

**Senior Software Engineer**

I was a senior software engineer on the backend team. I reported directly to a Team Lead & Manager. The backend team was responsible for all server-side components of the application.

- Re-factored and migrated all user management systems for a legacy code-base.
- Re-architect all backend database communications and systems to migrate from Cassandra to Postgres.
- Migrated all backend systems from a custom data abstraction layer to JPA annotations on POJOs.
- Created several coding challenge questions and automated evaluation system to aid in the hiring process.
- Created organizational standards around error handling to enforce a consistent view of defects.

Oct. 2010 - May 2015 **ESPN** Bristol, CT

**Associate Development Engineer**

I was on the Technology & Innovation team, I reported directly to an Associate Director of Engineering. The Technology & Innovation team was tasked with short term strategic projects, innovation initiatives, and experimental projects to help asses the value of various kinds of new technologies.

- Implemented a tool to visualize and compare any two umpires strike zones across any to points in time. This was turned into an on-air telestration tool.
- Ported ESPN's TotalQBR calculations from VB script in an Excel spreadsheet to raw VB code for use in driving on air graphics systems.
- Designed a basic algorithm to create play-by-play text from baseball game play by play data.
- Designed and implemented an algorithm to send notifications on AMQP queue for all program changes and commercial break start and end events.
- Implemented a custom HLS video server to re-construct HLS feeds between any two points in time.
- Designed and implemented a public API for users to submit play-by-play data about non-professional sports.
- Implemented ESPN's twitter integration for Windows 10.
- Helped perform technical due-diligence on several potential acquisitions.
- Designed and implemented a PoC semantic-web database to power a next generation content management system.

Jan. 2007 - Dec. 2009 **UVM Complex Systems Center** Burlington, VT

**Student Researcher**

Research in social networks, complex systems, and automated emotional classification of online text. We were the first team to measure the happiness of Twitter in real time. The team's work was covered in the New York Times and published as a letter to the journal Nature.

- Wrote data ingest system to perform sentiment analysis of Twitter fire-hose.
- Wrote a language classification tool to detect English and Spanish language tweets.

## Certificates

- 2011 JavaSpecialists.eu Java Specialist Master  
2011 JavaSpecialists.eu Java Concurrency Specialist

## Education:

- 2006 - 2010 University of Vermont Computer Science & Philosophy  
2000 - 2004 Weston High School  
2002 HCSSiM  
2003 HCSSiM