

I'm an experienced (10+ years) engineering manager, systems architect, technical lead and software engineer. I specialize in greenfield development, innovation, micro-service architectures and online video distribution systems. I believe engineering is a discipline driven by making decisions based on data. *Seeking director and management level roles. 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
USPTO 20200099974 - Systems And Methods For Generating Individualized Playlists - PENDING
USPTO 16/836,700 - Fast Video Stream Startup - PENDING

Technologies

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

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

GCP: Compute Engine, 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

Queuing: Kafka, NATS, RabbitMQ, ActiveMQ

Management: Hybrik, Concourse, Vault, Zookeeper, Chronos

Data: Hadoop, Spark

Software: IDEA Suite, JIRA, Confluence, PivotalTracker, Emacs, Vim, Gnuradio, Maltego/Paterva, ~~LT~~EX

GNU/Linux: Arch, Debian, Ubuntu, LFS

Roles

Apr. 2019 - Present **Pluto TV** New York, NY

Engineering Manager Video Systems

I manage 3 engineering teams of 4-6 people each and report directly to the VP of Engineering. My teams are 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

Senior Software Engineer
Manager Video Quality, Switch-
ing/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.

Jun. 2015 - Aug. 2016 **Perka**

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.

September 2018 - April 2019 **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 assess the value of various kinds of new technologies.

- Implemented a tool to visualize and compare any two umpires strike zones across any two 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.

matt@tretin.net
203.247.0623

Matt Tretin

123 East 82nd St.
Apt. 3D
New York NY, 10028

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 JavaSepcialists.eu Java Specialist Master
2011 JavaSepcialists.eu Java Concurrency Specialist

Education:

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