

# ALEXANDER M. MILKOV

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## SUMMARY

Largely self-taught developer willing to work in any language paradigm or domain, but with industry experience primarily in functional programming. Seeking to provide solutions to unique and nuanced problem spaces in systems that maximize performance, scalability, and maintainability simultaneously

## EDUCATION

**Georgia Institute of Technology**, Atlanta, Georgia

*Jan 2015 – May 2017, Sep 2019 -*

M.S. Computer Science

- Computing Systems Track
- Coursework: Computer Networking, Software Development Process, Machine Learning for Trading, Information Security, Database Systems, Software Analysis & Test, Network Security, Cyber Physical Systems, Big Data for Health Informatics
- GPA: 3.8

B.S. Industrial and Systems Engineering

*Aug 2011 – Dec 2014*

- Economic and Financial Systems Track
- Computer Science GPA: 3.6

## WORK EXPERIENCE

**The Weather Company, an IBM Business**, *Senior Software Engineer*

*Jan 2019 – present*

- Rearchitecting multi-tenant alerting system: join alert locations with subscribed users in Mongo and queue them on Kafka. Consumer fetches content templates persisted in Redis (with a client API to manage them), populates them from polled Kafka messages and distributes them via some messaging platform protocol: APNS (iPhone push), FCM (Android push) etc
- Migrating services to AWS's managed (EKS) Kubernetes (k8s) and carving out best practices and tooling for k8s clusters i.e. Prometheus, Alertmanager, Grafana, Loki, nginx-ingress, etc in preparation for eventual migration to IBM Cloud
- Built service that consumes transaction receipts, generated by distribution service and stored in SQS, and writes them to Cassandra keyspace used to run reports/analytics. Receipts denoting bounce failures from messaging platforms are queued separately to disable the now invalid subscriptions in our profile system

**Comcast**, *Senior Software Engineer (Contractor)*

*June 2018 – Dec 2018*

- Worked on fullstack system (Scala.js + React bindings, Scala backend) enabling operators to remotely manage the configuration of hundreds of thousands of networking devices

**The Weather Company, an IBM Business**, *Software Engineer*

*Sep 2016 – Aug 2018*

- Code review all PRs to Scala services and main functional programming evangelist in the B2C group, leading initiatives to adopt and mentoring on how to properly use, libraries in the purely functional side of the Scala ecosystem
- Responsible for developing and maintaining user profile system (1M req/sec peak) that manages all user data such as subscriptions, locations, demographics, and device endpoints.
- Responsible for developing and maintaining alerting system, which fetches user subscriptions, populates content templates, and distributes them to devices.
- Built service that computes scores indicating degree of flux of relevant weather forecast indicators such as temp and precip over a given time interval. Scores outside thresholds prompt delivery of flux push alerts to subscribing users. Built out AWS architecture for said service including caching, monitoring, and deployment pipeline
- Built historical observations service for all Samsung smart phones on a tight deadline. Pub/sub architecture: Scheduled ingestor processes large S3 files and writes them into Redis. client-side API reads from Redis
- Built global data privacy regulation (GDPR) service that integrates with a Salesforce help desk system and numerous backend services to allows users, on demand, to download or delete all of the data the company has stored on them
- Maintained and contributed to legacy weather data service handling 120K req/sec
- Built small service in Haskell and then Clojure (as a learning experience and to evaluate both for production use cases) to read/write data from/to Cassandra

**The Home Depot**, *Contracted Developer*

*Jan 2016 – Jul 2016*

- Responsible for creating and maintaining Spring services architecture interconnecting business components and bridging them into Manhattan's warehouse management software
- Managed deployments and subsequent health of services across all lifecycles

## PROJECTS

*Confide (Haskell)*: Generically decode record types from HOCON config file using `GHC.Generics`

*aws4cats (Scala)*: `cats-effect`, `http4s-core`, and `fs2` wrapper around the 2.0 AWS Java SDK. Supports SQS. Will support S3, DynamoDB

*Validen (Scala)*: (*sunset*) A generic case class validator designed to alleviate programmatic validation by encoding validator schemas in a simple spec language with a corresponding AST. Perfect for static JSON validation for example

## SKILLS

Scala (Scala.js), Haskell, Python, Java, Clojure, JavaScript, Bash, React, Linux, Git, Travis, AWS, MongoDB, Cassandra, Docker, Kubernetes

## COMMUNITY INVOLVEMENT

**LambdaConf**, Attendee

*June 2018*

**Atlanta Scala Meetup**, Host/Presenter: *Purely Functional Effect Systems in Scala*

*April 2018*