

# Andi Miller - CV

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Email	Website	Citizenships	Portfolio
andi@andimiller.net	andimiller.net	NZ, UK	github.com/andimiller/

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## Skills and Experience

### Languages

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Scala	12 years of experience, with 9 years of purely functional development, current main language.
Java	Experience using Java for backend development.
C	Commercial experience writing patches for OpenSIPS and Asterisk while at Gradwell.
Python	Used for many projects including open source infrastructure for EVE Online alliances.
Haskell	Personal projects and small work tooling.
Rust	Personal projects and open source projects.

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### Technologies

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Functional Programming	Experience writing purely functional software in multiple languages.
Stream Processing	Kafka, zeromq, RabbitMQ, Pulsar and other high throughput streaming technologies.
Big Data	Druid, Pinot, Elastic, Cassandra and Spark for storage and aggregation.
Data Sketches	Hyperloglog plus variants, Theta, Tuple, etc.
Distributed Systems	Have built concurrent distributed systems with actors and consensus systems.
Architecture	Have experience building data processing architectures at scale.
Language Development	Experience implementing domain specific languages with technologies including ANTLR, fastparse and droste.
Observability	Enthusiastic about metrics and tracing, having used them extensively.

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### Interesting Work

#### Patent US10579827B2

- Optimisation for HyperLogLog which can reduce memory use by up to N where N is the number of nodes in the cluster.
- Included lazy bucketing and pre-allocation of data around an Elastic cluster.

#### IDML

- Open source JSON processing language used for data processing at DataSift and Meltwater
- JVM first, integrated with Kafka Streams, Hadoop and ElasticSearch.
- Implemented with ANTLR and Scala.

### Open Source Contributions

#### http4s

- added OkHttp client
- Header class QoS improvements

#### apache/pinot

- expanded Theta Sketch support
- expanded HyperLogLog support
- added Tuple Sketch support
- added UltraLogLog support

#### typelevel/cats

- added extra syntax for Bitraverse

#### typelevel/cats-effect

- added mapK to Resource

## Employment

### Senior Software Engineer, Permutive, 2022 - Present

- Worked on purely functional Scala microservices with the typelevel stack.
- Worked in an agile team using scrum development practices.
- Extended routing products to support new destinations.
- Worked on redesigning insights products.
- Gained experience with Pinot.
- Gained experience with Tuple and Theta sketch usage at scale.

### Senior Software Engineer, Meltwater UK, 2018 - 2022

- Developed purely functional Scala microservices with the typelevel stack.
- Worked in an agile team using scrum development practices.
- Practiced DevOps maintaining our own infrastructure and being on call.
- Practiced Type Driven Development and Test Driven Development.
- Maintained an in-house Domain Specific Language for transforming JSON at scale in Scala.
- Worked on ingestion of firehoses into Meltwater's systems.
- Helped improve and develop the Meltwater Public API

### Platform Engineer, DataSift, 2013 - 2018

- Developed microservices in Scala with a combination of Dropwizard and scalaz-based stacks, switching to typelevel later.
- Worked in agile teams using scrum development practices.
- Co-developed an in-house Domain Specific Language for transforming JSON at scale in Scala.
- Worked on privacy-first analysis of Facebook data in Facebook's datacentre.
- Worked on the DataSift open source client libraries, with a focus on the Python one

### VoIP Engineer, Gradwell dot com Limited, 2011 - 2012

- Maintained and developed a large award-winning Open Source VoIP stack
- Regularly worked with both Support and Sysadmin departments
- Worked in a variety of languages, including Perl, C, Python and Ruby
- Helped migrate from CVS to Mercurial
- Helped move to and administer Jira
- Re-engineered the VoIP platform to work across multiple datacentres.
- Developed deployment infrastructure with puppet to reduce deployment time from 10 hours to 1.

### Freelance Coder (Google Summer of Code), Google, 2010

- Did some experimental work on integrating open source video and audio editors Pitivi and Jokosher
- Worked with GTK and DBus

## Education

### B. Eng. Software Engineering, University of Wales Aberystwyth, 2009 - 2013

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- Averaged over 70% in Programming modules.
- Opted into Open Source and Artificial Intelligence modules.