

# JOSE CARDONA

✉ cardona.josem{at}gmail{dot}com · 🌐 jmcardon · 🌐 josecardona.ca

## 👤 EXPERIENCE

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### Oquant

September. 2018 – Present

*Software Engineer*

Working on developing back-end and data analytics software in Haskell, as well as novel solutions to problems in financial markets.

### AiMe GmbH (Remote)

Jun. 2017 – June 2017

*Software Engineer*

Worked on developing back-end application exposing rest APIs for customers consuming our analytics platforms (Time series analysis and anomaly detection).

- Implemented streaming data validation and FFI interface for data analytics task submissions, monitoring and remote/local execution, for efficient data processing and rapid feedback.
- Designed and maintained the database schema, including migrations (Flyway).
- Implemented secure, up to date user security, authentication and authorization modules using up to date cryptographic primitives.
- Algorithmic optimization for in-house developed Genetic algorithm.
- Managed AWS cloud deployment, staging and release cycle using Docker.
- Ensured EU GDPR-compliant data storage policies on AWS.

### IVRTek Solutions Inc. Toronto, Canada

Jan. 2017 – June 2017

*Contractor: Full Stack Developer*

Lead application designer for a server cluster using LVS, Play Framework, Akka, Redis and CassandraDB, with an AngularJS frontend.

- Implemented a distributed notification system using Websockets, powered by Akka and Redis
- Delivered an on-time application prototype for a law firm's system that handles automated generation of legal documents for the firm's clients.
- Handled System Design, Cassandra Data modeling and queries, security schema (JWT Auth, CSRF and XSS protection), API Integration with Google/Dropbox, REST API endpoints, Unit and Integration Testing

### York University CS Research Toronto, Canada

March 2016 - Present

*Software Developer* Under Ph.D Student Navid Mohaghegh

Application designer for full stack web application for AMD (Age-related Macular Degeneration) Data Collection, using AngularJS, JQuery, Play Framework, MySQL, Slick and Akka in Scala, Java and Javascript, proxied through by NGINX

- Developed Database Schema, UI, Image Processing interface and backend Rest API.
- Secured Web Application with: SSL Open sourced tools (OpenSSL + Let's encrypt), Data Storage (Secure Credentials + Encrypted storage), XSS Protection, and drowning in OWASP docs.
- Assisted with proofreading papers.

## 🌐 OPEN SOURCE PROJECTS (NOTE: MORE DETAILED LIST ON MY GITHUB)

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### Http4s

*Maintainer* (Security, performance, functional programming)

- Implementation of Streaming Multipart parser, Auth middleware improvements.
- CSRF middleware (implemented using the double submit cookie pattern)
- tsec-http4s auth module (more in tsec section)
- Websocket implementation fixes and compliance
- Load testing, Benchmarking and optimizations.

- General bugfixes, code reviews, and optimizations.

## TSec

### Author

- Purely functional interface to cryptographic primitives on the JVM, including primitives from the JCA, Bouncy castle and Libsodium (using jni + swig). Including but not limited to primitives for: Symmetric encryption, Secure Hashing, Message Authentication, Digital Signatures and Password hashing
- Tsec-http4s module including different Authentication types (Bearer, JWT, Signed cookies), Authorization (Role-based, Discretionary, Bell La-padula inspired and Mandatory similar to the linux model).
- CSRF protection implementation with stronger hash algorithm support.

## ⚙️ SKILLS (BUZZWORDS)

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- Scala, Haskell, Java, Python, C, C++, Javascript, Typescript, Bash
- In-depth knowledge on network protocols (TCP/UDP, Http, ICMP).
- Cryptography
- Database systems: SQL. DBs: Postgres, Mysql, CassandraDB
- Backend frameworks: Http4s, Netty, Play, Akka-http, Java EE, Django
- Security: Scapy, Burp, Hydra, John, Aircrack-ng, Metasploit, SQLMap, and other misc. Kali tools
- Cloud deployments: Docker, AWS
- Development: Back-end, Distributed systems, Functional Programming, Front-end

## PRESENTATIONS

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- Modern, Functional Cryptography: Lambdaconf 2018

## 🎓 EDUCATION

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**York University**, Toronto, Canada

2015 – Present

*Undergraduate student* in Computer Security Honors Bsc, expected December 2018

- Courses: Computer Architecture, Data Structures, Algorithm Analysis, Operating Systems, Database Systems, Applied Cryptography and Mathematical Cryptography, Graph Theory, Computer Networks, Secure Software Development, Abstract Algebra, Combinatorics.

## PUBLICATIONS

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**Activity-Based Data Fusion for Automated Progress Tracking of Construction Projects** 2012

<http://ascelibrary.org/doi/abs/10.1061/9780784412329.085>

- Main Contribution: Matlab code proof of concept for automated progress tracking software.

## 📖 MISCELLANEOUS

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- Languages: English - Fluent, Spanish - Fluent