Chathura Colombage

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Summary

Pragmatic developer who enjoys writing well tested code in a variety of platforms and languages specialising in Backend technologies. Equally comfortable writing model checking code in Coq to native code in C++.

Has special interest in backend technologies such as *Scala*, *Java* and *C++*, and writing well tested code with properties based testing, unit testing and model checking. Ever since dabbling with *LISP* language after high school has been a functional programming enthusiast.

Enjoys working on the command line and using open source tools whenever possible such as Vim/Emacs and Linux, but equally proficient and comfortable with PowerShell and Windows environments.

Has a track record of working within a team and contributing ideas and code to solve novel problems, or existing problems in a more efficient manner.

From 2014 to 2018 worked as a post-graduate researcher at the Univeristy of St Andrews in the Functional Programming group and Scottish Enterprise funded startup *ParaFormance* which developed tools for mult-core programming through high level refactorings. Previously he studied at the University Surrey focusing on Cloud computing, earning an MSc with distinction, and before that he earned degrees from Univeristy of Colombo at undergraduate level.

Experience

Qlearsite — London, United Kingdom

Backend Software Engineer — *June '18 – Present*

Qlearsite is an HR analytics company with expertise in innovative AI and data analytics approaches.
Developed and improved garbage collection mechanism in the persistence layer of the in-house analytics database.
Added new functionality to the in-house analytics database using *Saddle* and other data processing libraries in *Scala*. Extended Query engine working closely with the embedded *Jython* interpreter and wrote custom high level functions with *Python*.
Developed new in-house database benchmarks for regression testing and low level performance testing with *ScalaMeter* Scala benchmarks.
Wrote the core high-level *Excel* library with streaming/non-streaming support utilising *Apache POCO* and streaming libraries in *Java* with tests, and used the library to implement data transfer functionality in the analytics database.
Upgraded existing *Jenkins* build setup to a unified declarative (*YAML*) process utilising *Python* and *Groovy* scripts. Deployed and maintained deployment processes with *Ansible*.
Implementing a *Clojure* library and Web service for flexible and powerful domain data validation and importing based on a specification.
Implementing an *HDFS* layer for the in-house analytics database for distributed and fault tolerant file synchronisation.

ParaFormance (University of St Andrews) — St Andrews, United Kingdom

Software Engineer — *Sep '16 – Dec '17*

Implemented bespoke profiling solution (*discovery tool*) based on C++refactorings as part of the multi-core refactoring solution developed through ParaFormance project. Specifically used *LibClang* and other *LLVM* APIs for instrumentation. Wrote code in *C++11* also using Boost, and Google GTest *(unit testing)* libraries. Utilised tools such as *valgrind* to discover and fix bugs.
Developed Python *integration testing* solution to test complex use cases while introducing *Docker* for testing on a wide range of Linux OS versions.
Ported common benchmarks to Windows plaform utilising *cmake* build tool with glue code written in *PowerShell* scripts.
Developed a bespoke licensing solution with *RSA* encryption in C++using *OpenSSL* library, to be integrated to ParaFormance software products. Wrote the prototype in *Go* which is available as a public Github project.
Helped to integrate *discovery tool* to editor Plugins - Eclipse CDT (Java) and Visual Studio (C#).

Gold-i — Guildford, United Kingdom

Software Engineer — *Sep '12 – Sep '14*

Gold-i is one of the leading MetaTrader integration solution providers in the world. Developed a Reconciliation engine to match against MetaTrader positions/balances against market positions/balances

using C# utilising technologies such as QuickFIXn, SOAP, and asynchronous programming.
Developed industry first BitCoin feeder for the MetaTrader platform (fx-mm news release) in C++, utilising POCO libraries, WebSockets and multi-threading.
Developed REST web services integrating MetaTrader platform with a client back office system in C#, and implemented FIX protocol based extensions to facilitate custom back office processing.
Developed Oracle database solution for MetaTrader plaform in C++, closing working with the client to implement bespoke customisations. Used *Boost* libraries and OCCI (database) APIs and SQL for the solution.
Ported native MetaTrader Manager API to .Net platform using managed C++. This enabled and sped up the implementation of custom database solutions utilising high level *.Net* APIs such as *NHibernate*.
Developed Gold-i Dashboard project which provides central internal monitoring and configuration functionality for various Gold-i products installed at client premises. The lower level protocol was developed utilising Google protocol buffers, and higher level GUI interface was developed using WPF 4.5 in C#.
Participated in the interviewing process for new recruits and mentored junior developers on C# and WPF best practices.

IFS R&D International — Colombo, Sri Lanka
Software Engineer — *Apr '11 – Sep '11*
Adavanced training in Oracle database technologies and PL/SQL. Development and maintainance of ERP applications using PL/SQL and Centura development platform.

MSc Projects — Surrey, United Kingdom
Sep '11 – Sep '12
Cloud computing project - Value at risk calculation in Python using *webapp2* framework on top of Google AppEngine. Utilised Amazon EC2 and OpenStack platforms to distribute compute intensive work. Implemented automated resource provisioning. Used Amazon SimpleMQ message queues for front end and back end integration.
Collective intelligence project - Flickr image data analysis using Python to develop collective intelligence algorithms to identify seasonal trends. Utilised *MongoDB* NoSQL database as part of the data pipeline to speed up processing loosely structured data.
Enterprise application development project - Community ranked Q&A site implemented using Java *Spring 3* MVC web technology. Implemented database solution using *Hibernate* for a MySQL database. Security was implemented using Role Based Access control, and utilised Apache *Solr* for advanced search functionality. Ajax functionality was implemented using *jQuery* and Spring AJAX support in the back end.

BIT Thesis Project — Colombo, Sri Lanka
Oct '09 – Oct '10
Online Gem Auction system - Implemented using *Groovy* and *Grails* web technology stack. Used Apache Shiro framework to implement a token based security model while using *JMS* with Apache *ActiveMQ* message broker for email notifications. Integrated Compass and Apache *Lucene* for advanced search functionality.

Education

University of St Andrews — St Andrews, United Kingdom
Ph.D. in Computer Science *(Dropped out)* — *Sep '14 – Mar '18*
Dependently typed programming in *Coq* and *Idris*. Modelling and writing correctness proofs for algorithms in Coq. Functional programming in Haskell.
Benchmarking and writing hetrogenous multi-core algorithms in C++.
Teaching & Lab assistant work in multiple undergraduate modules; in functional programming, C programming, and MSc level Java programming and Database modules.

University of Surrey — Surrey, United Kingdom
MSc in Internet Computing *(Distinction)* — *Sep '11 – Sep '12*
Thesis - Comparative Study of Gaussian Processes and Ensemble Methods
Supervisor - Prof. Yaochu Jin

University of Colombo — Colombo, Sri Lanka
Bachelor of Information Technology *(2:1)* — *Oct '06 – Dec '10*
Thesis project - Online Gem Auction System.

University of Colombo — Colombo, Sri Lanka
Bachelor of Science — *Jun '07 – Sep '10*

Committee member of Epsilon Delta Maths society. University Colours and National medals in Rowing.

Coursera Modules

Functional Programming Principles in Scala *Distinction* *May '13*

Programming Languages (SML, Racket, Ruby) *Oct '13*

Skills

Technical expertise: Software design and implementation, with(in) a team. Big fan of well tested modern code bases. Enjoys writing Scala/Java (*SCJP Java 5 - 94%*)/C++/Python/Haskell/C#, yet flirts regularly with Rust/Go and Erlang. Solid knowledge of backend technologies: Scala (ScalaTest, ScalaMeter, Saddle, Grizzly and Jetty, REST), C++(Boost, POCO, LLVM, POSIX, and WINAPI), Java (Spring, Grails, Hibernate), C# .Net (NHibernate, MS Entity Framework), Python (Django, winapp2, Flask). Working knowledge in frontend technologies: JavaScript (jQuery), WPF (MVVC design pattern), and Java Swing. Scripting - Linux (Bash), Windows (PowerShell). Docker for integration testing. MetaTrader - *manager* API, *server* API, and *datafeed* API. Protocols - *FIX*.

Natural languages: Sinhalese *(native)*, English *(full professional proficiency - IELTS 7.5 (2011))*.

Interests

Non-exhaustive and in alphabetical order: art, chess, functional programming, formula1, open source, philosophy, hiking, indoor climbing, running.