

# James Pike | Curriculum Vitae

+44 750 163 1544 • jcv@chilon.net • chilon.net  
ohjames

*Lead Full-stack Software Developer with strong skills in many programming languages and Linux.*

## Education

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<b>Imperial College London</b> <i>MEng Computing, Second Class Hons</i>	<b>London</b> 2000–2004
<b>Exeter College</b> <i>A-Levels, Maths: A, Further Maths: A, Physics: A, Computing: A</i>	<b>Exeter</b> 1998–2000
<b>Sidmouth College</b> <i>GCSEs, 4 A*, 4 A, 1 B</i>	<b>Sidmouth</b> 1996–1998

## Master's Thesis

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**title:** Cb

**description:** Transpiler for a teaching language Cb based on a subset of C# with a plugin system to allow compile-time modifications. The parser was constructed using ANTLR.

## Computer Skills

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- Full-stack Web Development
  - Node.js (6+ years)
  - JavaScript (15+ years), Single Page Applications (8 years).
  - Frameworks/Libraries: Angular 1/2/4, React (+ Redux), Aurelia, D3, Ember & Polymer.
  - HTML5: WebSocket (+ Socket.IO), Canvas, WebGL (+ GLSL), Web Workers, IndexedDB, History, Fetch API, Web Components & Shadow DOM.
  - CSS: CSS3, SCSS (sass), bootstrap, compass & less.
  - Module systems: webpack, systemjs, jspm, require/amd, bower & browserify.
  - Build systems: gulp, grunt & broccoli.
  - EcmaScript 6/7/beyond (4 years), TypeScript (2 years), flow.
  - Testing/TDD: karma, protractor, jest, jasmine, mocha, chai & sinon.
  - V8 C++ API (including C++ node modules and integration of V8 into C++ projects).
- Databases: RethinkDB, MongoDB, MySQL, PostgreSQL, Redis.
- DevOps: AWS (EC2, S3, SES, CloudFormation, ElastiCache), Rackspace, CoreOS, Docker, rkt, Vagrant & Chef.
- C++, C++11, C
  - Boost (mpl, multi index containers, spirit etc.), Meta-programming.
  - Multi-threaded/event-based code - pthread, boost::thread, libuv, boost::asio.
- Embedded Devices: Microsoft Gadgeteer (.NET MF)/Raspberry Pi/Arduino.
- Ruby
  - Event-based/threaded code: EventMachine, Fiber, Thread.
  - Ruby C API including gems written in C++ (using C API and FFI).
  - Servers: Rails 3+4, Sinatra, Goliath.
  - TDD/BDD: Rspec.
- Scala, D (2.0 + vibe.d), C#, Python, zsh, bash, lua, Perl 5.

## Experience

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### chilon.net

*Independent IT Professional*

**London**

*2014–Current*

- **Bulb Energy (March 2017 - Current)**: nodejs, TypeScript, ES6/7, flow, react/redux, apollo-client, GraphQL, webpack, jest, CircleCI: Wrote a nodejs GraphQL server in TypeScript to sit in front of all existing APIs. Rewrote much of the existing react/redux/flow dashboard website to use the graphQL endpoints via apollo-client. Added features, fixed bugs and updated the code to follow modern best practices. Tested all functionality with e2e tests and jest/mocha/chai unit tests.
- **Dangler (May 2017)**: Angular 2/4, TypeScript, rxjs, websockets: An angular powered stock ticker for crypto-currencies that uses observables and the OnPush change detection strategy for all components.
- **Collabo Dream (Feb 2017 - April 2017)**: Angular 2/4, TypeScript, rxjs, nodejs, webpack, websockets: Full-stack development on a web app that lets users collaboratively edit a music playlist together in realtime and listen to it in sync. Designed and wrote the code alone.
- **Clickon Media (Jan 2017 - March 2017)**: nodejs, ES6, mariadb, docker: Wrote an analytics API to calculate historical "trending" data from view counts for all articles.
- **kchomp (July 2016 - Jan 2017)**: nodejs, react/redux, webpack, IndexedDB, web workers, web animations: Reimplemented an Aurelia based front-end. Many improvements were added including a local IndexedDB cache and making animations hardware optimised using the FLIP technique.
- **Ticket Text (Feb 2015 - Dec 2016)**: nodejs, mongo, express, ES6/7, docker, CoreOS, angular 1.x, webpack, sass, bootstrap, bluebird, protractor, karma, mocha, redis, AWS, cloudformation, ElastiCache, CircleCI: Full-stack development as a technical lead on a ticket website. At times working alone and at other times leading a small technical team. The back-end was written as an SOA using a TDD approach and with end to end testing. Services communicated via Redis pubsub provided by ElastiCache. The front-end code was structured using a component based architecture. I was responsible for designing and implementing all DevOps processes, these were entirely automated using AWS, docker, docker hub, CoreOS, etcd2 and CloudFormation. CICD was used to automate testing and building of the code. The site has been used for several ticket sales where thousands of tickets were sold in a few minutes.
- **kchomp (Jan 2015 - Apr 2016)**: ES6/7, nodejs, rethinkdb, express, aurelia, scss, gulp, jspm, SystemJS, CircleCI, CoreOS, docker: Full-stack development on an all in one content aggregator web application. The back-end was written in ES6/7 and the front-end was written in TypeScript using the Aurelia framework. Performed all DevOps, deploying to a CoreOS cluster running on Digital Ocean and load balanced via haproxy (configured via confd + etcd2). CICD was used to automate testing and deployment.
- **We are Everywhere (Dec 2014 - Feb 2015)**: ember-cli, ember-data, nodejs, sails, mongodb: Full-stack development on a fitness/nutrition SPA. Built and designed the code for the nutrition, dashboard and payment front-end components working with a designer. Worked on a fitness data visualisation using D3. Built the node.js back-end component to interface with a payment processor (UPG/SHP) using TDD and helped improve and bugfix existing back-end and front-end components.
- **Goldsmiths, University of London (Aug 2014 - Dec 2014)**: nodejs, mongodb, mocha, chai, redis, angular, sass, bootstrap, google maps, C#, embedded development, MS Gadgeteer, protractor, aws, ec2, s3: Full-stack development and design for a "big-data" interactive research project including a server component built with a service oriented architecture and a front-end component. I worked in a team containing one other senior developer. The backend component was developed using a TDD approach. End-to-end tests were written using Protractor. Moved the system from a local server to the cloud. I also designed the code architecture for an embedded hardware client written in C# using the Microsoft Gadgeteer (.NET MF) platform and developed the code. This included writing a driver for the SIM900 GSM/GPRS modem.

### TS-Associates

*Senior Software Engineer*

**London**

*2008–2014*

Worked on latency sensitive server side projects and web front-ends in various languages and at all stages in the software development lifecycle.

- Node.js/MongoDB/Bootstrap (sass)/Angular/Grunt/Bower/RequireJS/EcmaScript 6 (traceur): Lead a two man team for the redesign and reimplementation of a legacy PHP UI. It was rewritten as a web application using modern HTML5 components structured with AngularJS in object-oriented JavaScript style using traceur and tested using Protractor.
- JavaScript/C++/V8: Designed and developed a system to allow customers to write message decoder plugins in JavaScript for the TipOff latency monitoring appliance. This included writing an [open source library](#) to simplify binding between C++ and V8. Extra functionality was added in JavaScript to make the system take advantage of a dynamically typed environment.

- C++11/RFA/Lua/JavaScript: Designed, implemented and tested a high performance (800,000 messages per second) interactive real-time multi-threaded C++ server (TREP Feedhandler) for relaying large volumes of stock market and news data using RWF.
  - Boost: Use of asio, mpl, multi\_index\_container, regex and others.
  - C++: Hand-optimised latency critical code using template meta-programming techniques and boost::mpl.
  - valgrind/kcachegrind: Profiling the software to find and fix bottlenecks in performance.
  - C++11: Upgraded project from C++03 to C++11 in order to simplify code and improve performance.
  - Lua: Designed and developed a programmable configuration system based on lua with bindings to C++ to allow a great deal of flexibility in the configuration of the product.
  - JavaScript/Node.js/TDD: Designed an extensive event-based regression system using Node.js involving a mock server that can be customised with JavaScript code.
- C++/boost::asio/boost::python/Python: Participated in the standardisation process of an open source inter-party latency monitoring transport system and wrote a reference implementation in C++ (boost::asio) with python bindings (boost::python).
- C++/PHP/MySQL/Infobright: Developed high-performance MySQL middleware and server components including a low-memory bulk insertion system and an RRD system similar to RRD tool both for MySQL and Infobright including PHP and JavaScript (V8) bindings.
- Scala: A daemon for polling data via XML-RPC and storing it in RRDs.
- C++/Ruby/TDD: Developed message decoders for the TipOff latency monitoring system and developed regression tests for all code in ruby.
- Perl/Awk/Ruby: General scripts in various projects.

### **Maven Labs**

**Singapore**

*Software Engineer and Systems Administrator*

*2007–2008*

I worked on "web 2.0" websites, administered a small network of servers and ran dev ops.

- Ruby on Rails/Jboss Seam/PHP: Developing high profile interactive websites from scratch alone and in small teams.
- JavaScript/JQuery/Underscore/Backbone/HTML/Haml/CSS/Sass - Developed front-end code for high profile websites alone and in small teams.
- SysAdmin/Shell/Zsh: Administered a small network of 15 machines running RedHat, CentOS and Ubuntu. Installed hardware in a data center in addition to maintaining the network and firewall. Maintained scripts for automating common sysadmin/devops tasks.

### **Yahoo!**

**London**

*Software Engineer*

*2007*

I was part of a team that provides location services.

- C++/STL/Boost: Designed and implemented a high performance multi-threaded webserver that provides traditional webserver technologies such as CGI and serving static data, amongst more advanced concepts such as accessing shared resources. The webserver is built from the ground up to support Web 2.0 technologies such as AJAX and Comet.
- JavaScript/HTML/CSS: Wrote front-end code using the webserver I developed to allow testers to submit corrections to a Yahoo's semantic analyser.

### **Amadeus**

**London**

*Software Engineer*

*2004–2007*

I worked as a C++ developer on a large multi-tier, multi-threaded real time check in system containing over one million lines of code.

- C++/STL: The re-design and implementation of the customer check-in server using modern C++ techniques (policy-based class design, iterator adapters, template meta-programming).
- C++/STL/middleware: The design and coding of APIs and utilities for use throughout the company.
- Perl: The design and implementation of a regression system built on top of the existing Perl coded test system. This system simplified the implementation of the regression building process and vastly increased maintainability.
- Python/DevOps: The design and implementation in python of a system allowing object code to be stored and referenced against CVS releases of the code and then re-used via symlinks. This shortened compilation time significantly in a large project worked on simultaneously by over 100 developers.

### **Others**

**London**

*MIK Consultancy (C++/C/Qt) 2003, Astraguard (C++/Qt) 2001*

*2001–2003*