

# Igor Kaplounenko

senior software engineer

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## Special Qualifications

### Languages

- CoffeeScript, LiveScript with React, Redux, Immutable.js, Lodash, Bootstrap
- Python with Tornado
- C++14 with STL and Boost

### Other Technologies

- elliptic curve cryptography, NaCl
- SQLite, MySQL, PostgreSQL, Redis
- Linux, FreeBSD
- AWS S3 and EC2
- Git

I am familiar with a variety of other languages and technologies as well, but am primarily a LiveScript, Python, and C++14 aficionado.

## Work Experience

### 2015-2016      Software Engineer at Hipmunk

- Designed and implemented an admin panel for managing server alerters for PagerDuty. (*Python, Tornado, CoffeeScript, React, Lodash, Bootstrap*)
- Implemented a bot detection system that uses browser profiling and geoIP tracking to tarpit and feed fake data to bots. (*Python, Tornado*)
- Interfaced with Qatar's flight search API. (*Python, Tornado*)
- Implemented the second version of the United Airlines' booking API. (*Python, Tornado*)
- Implemented the generation of booking links from Sabre travel network's API. (*Python, Tornado*)

### 2012-2015      Python Developer at BitTorrent, Inc.

- Designed and implemented a UDP distributed share server to provide an API for uTorrent clients to help seed pieces of large torrents. (*Python, Tornado*)
- Implemented the distributed share API on the uTorrent side. (*C++*)
- As part of the uTorrent Core team, helped fix bugs in the uTorrent codebase. (*C++*)
- Implemented features for the SoShare product on both client and server-side. (*C++, Javascript, Python, Tornado*)
- Was one of the core contributors to the daemon component of the chat client Bleep, which functions as a SIP server with a cryptography layer. (*C++11, NaCl, curve25519, ed25519, SQLite*)
- As part of an Agile team, worked on a number of features and bug fixes in Bleep on Windows, Android, OS X, and iOS.

**2010-2012          Senior Software Engineer at Sony Network Entertainment, Inc.**

- Implemented a simulator of a PSN video store and was responsible for extending it with prototypal functionality. This was showcased at E3. (*Python, Tornado*)

**2008-2010          Software Engineer at Skiff, LLC**

- Designed and implemented a WebKit plugin for mp3 audio playback on an embedded device. (*ALSA, MPG123, C, C++*)
- Ported frotz (a Z-Machine implementation) to an embedded device and implemented a WebKit plugin to interface with it. (*C++*)
- Designed and developed a New York Times crossword engine. (*Javascript*)
- Engineered a library to dynamically insert ads into publications as they are displayed. (*C++, SQLite*)
- Collaborated with other teams to integrate libraries and plugins.
- Debugged third party Linux drivers that would cause the system to intermittently hang during boot. (*C*)
- Ported OProfile to a particular architecture and added support for hardware timers. (*C*)

**2008                  Lead Software Engineer at Genesis Interactive**

- Designed and implemented two server-side applications that poll third party APIs for information and make it accessible to the client-side app over HTTP. (*Python*)
- Wrote an administrative API plugin for Openfire XMPP server that allows remote user management and administration.
- Designed and implemented a RESTful API that interfaces a client-side application with a variety of third party services.
- Wrote a variety of server administration-related scripts. (*bash, Python*)
- Wrote an LDAP login module for Bugzilla. (*Perl*)
- Installed, configured, and administrated sendmail, Subversion, Bugzilla, Twiki, OpenLDAP, and integrated them together.
- Set up Nagios and wrote monitoring scripts for NRPE. (*bash, Python*)
- Set up and administrated Amazon EC2 servers as well as all in-house servers, running a selection of Fedora Core 7, Gentoo, and FreeBSD.

**2007-2008          Software Engineer at Yahoo**

**Yahoo Messenger**

- Designed and implemented an XML API to serve widget metadata to Yahoo Messenger widgets.
- Designed database schema for storing widget metadata. (*MySQL*)

**Yahoo Photos**

- Designed and implemented a distributed web API for the transfer of Yahoo Photos metadata to affiliates. (*C++, MySQL*)
- Implemented the logic for the user landing page for Yahoo Photos migration.
- Troubleshoot a variety of problems with the pre-existing internal photos API. (*C++*)
- Designed and implemented monitoring solutions for Yahoo Photos migration servers. (*bash, MySQL*)

- Designed and implemented a customer care tool for YPhotos accounts.
- Designed and implemented a landing page internationalization tool. (*Python*)
- Designed and implemented bulk account information retrieval tools. (*bash*, *C++*)

## **2006-2007          Software Engineer at AnchorFree**

- Worked as an embedded devices developer for mipsel architecture routers running a modified version of OpenWRT.
- Designed and implemented a buffered HTML parser and editor to be used as a proxy module. (*C*, *Javascript*)
- Designed and implemented a URL redirector to be used as a proxy module. (*C*)
- Tweaked and optimized an existing proxy. (*C*)
- Maintained a Subversion repository as well as a Bugzilla installation.
- Designed and implemented a collection of device registration and monitoring tools. (*C*, *perl*, *bash*)
- Ported TCL and Expect libraries to the mips/mipsel architecture.
- Designed and developed a remote administration tool based on inverse SSH to enable administration of routers used inside LANs. (*C*, *bash*)

## **2005-2006          Software Engineer at Coherent Inc.**

- Worked as a developer for a series of tools that were responsible for extracting data from laser test stations and putting it into the database, as well as making the data accessible via Apache/Tomcat.
- Designed and implemented data processing and analysis algorithms for the test stations (*C++*)
- Designed and implemented scripts to perform operations on databases. (*Jython*)
- Constructed and used Hyperion/Brio reports.
- Created scripts for data extraction from the laser testing station. (*Python*)
- Set up a MySQL database.

## **2004-2005          Software Engineer at UCSD Bioengineering**

- Worked as a developer on an application titled Continuity that modeled hearts in 3D using the finite element method. (*C++*, *C*, *Python*, *OpenGL*, *Fortran*)
- Designed and implemented numerical algorithms emulating heart operation in a computer model. (*C*, *Fortran*)
- Performed memory usage optimizations for matrix computation algorithms.
- Designed and implemented top-level control structures as well as GUI forms for Continuity. (*Python*, *TKinter*)
- Ported Continuity from Linux to Windows.
- Worked on socket level communication between the client and server side of the application. (*Python*)
- Migrated the codebase from CVS to Subversion and restructured the source code.

## **2003                  Software Engineer at Electric Power Research Institute**

- Worked as a developer on a climate-modeling application COSMIC.
- Designed and implemented the GUI for the program.
- Troubleshooted and corrected the program's numerical functions.

- Designed and implemented a help system for a laser testing program written in LabView.

## Personal Projects

**ebb** the Expressly Better Bencoder! (*C++11, Boost PP*)

Used internally at BitTorrent, this is a heavily template-based header-only library that simplifies encoding data into a JSON-like format. Bdecoding is also supported and is functional for straightforward data structures, but needs more work to be compatible with .torrent files.

**bevel** A multitool for commandline processing of bencoded entities with grep- and sed-like functionality. (*Python*)

Also used internally at BitTorrent for viewing and editing bencoded entities either manually or in a scripted environment.

**ronin** A roguelike featuring a hex grid and an innovative FOV algorithm. (*Python, Pygame*)

This is in extremely early stages of development but the FOV algorithm is complete and demoable.

**Dworkin** A deck builder for the card game Android: Netrunner. (*CoffeeScript, Ender.js, HTML5*)

Features a minimalistic interface, uses local storage for custom decks, and allows exporting to tsv as well as OCTGN format that is suitable for online play.

**cur** A copy-pasta detection tool for codebases. (*Python*)

Uses a suffix trie to detect duplicates and generates a code quality report.

**rat trap parts** An anagram-based word game. (*C++, ncurses*)

A cute word game where you try to make new, longer words from prior words by rearranging letters and adding any one letter of your choice during each step.

## Education

**Major** BA in Computer Science in the Math Department at UCSD

**Minor** Interdisciplinary Computing and the Arts with Music emphasis

- Completed a Cryptography I course on Coursera as offered by Stanford University.
- Over a year's worth of coursework in Digital Signal Processing and Synthesis as it applies to sound, incl. graduate level work. (*Pure Data, C, C++*)
- Familiarity with computer graphics, esp. raytracing and radiosity techniques. (*C++, OpenGL*)

references available upon request