

Igor Kaplounenko

senior software engineer

Python C++

Veteran backend software engineer with an emphasis on machine learning – microservices, tooling, and Cython/CPython extensions for machine learning frameworks.

author of **pytest-patch** and **modulemeta**

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Special Qualifications

Languages

- Python with Tornado, Flask + Connexion, FastAPI
- C++17 with STL and Boost
- CoffeeScript, LiveScript, JavaScript with React or Vue

Other Technologies

- TensorFlow, neon, nGraph
- OpenAPI
- elliptic curve cryptography, NaCl
- SQLite, MySQL, PostgreSQL, Redis
- AWS S3, EC2, Lambda
- Docker, Kubernetes
- Linux, FreeBSD
- Git

Work Experience

2020-2023 Senior Software Engineer at Lambda Labs

- Maintained the web store that sells machine learning computers ranging from laptops to rackmount servers. (*Python, PostgreSQL, JavaScript*)
- Liaised with the sale and finance teams to extend the store with new features.
- Refactored the codebase and extended it with tests, style checks, and type hints. (*Python, pytest, mypy, Nox*)
- Designed and implemented a customizable web-based GUI wrapper for arbitrary command line tools on behalf of **South Park Studios** that was used for their deepfake YouTube series. (*LiveScript, Vue, Pug*)
- Implemented lambda cloud monitoring. (*AWS Lambda, Python*)
- Implemented the DGX store pages. (*JavaScript*)
- Added minor features to the Deep Learning as a Service cloud platform. (*Elixir*)

2016-2020 Cloud Software Engineer at Nervana / Intel

- Designed and implemented a profiler for Intel's proprietary machine learning chip. (*C++17*)
- Designed and implemented a microservice for hosting AI chip profiling data. (*Python, Flask, Connexion*)
- Provided mentoring for a couple of interns.
- Contributed to the NGraph TensorFlow bridge, including porting to OS X, refactoring, implementation of various operations, pip packaging, and the C/C++ API. (*Cython, C++11*)
- Contributed to the Machine Learning Toolkit, primarily by refactoring the CLI to automatically load `argparse` commands from modules via metaclasses. (*Python*)
- Designed and implemented a service and a client library for neural network hyperparameter optimization and experiment tracking, intended to interface with the like of SigOpt and MOE. (*Python, Flask, Connexion*)
- Contributed to the deep learning `neon` framework and associated web services for deep learning in the cloud, particularly CLI refactoring, 100% unit test code coverage, launcher consolidation for different types of jobs, and a multitude of bug fixes. (*Python, Flask, Kubernetes*)

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.
- Served in a rotation as a Scrum Master.

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 our 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*)
- Debugged third party Linux drivers that would cause the system to intermittently hang during boot. (*C*)
- Ported OProfile to our 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 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.
- Troubleshooted 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++*)

Yahoo Messenger

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

2006-2007 Software Engineer at AnchorFree

- 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)
- 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*)

Personal Projects

pytest-patch An automagic patch fixture that can monkeypatch objects directly or by name. (Python)

modulemeta A Module metaclass to turn your classes into modules. (Python)
For committed developers, or at least those who definitely ought to be.

BetterHotkeys A mod for the indie game Barotrauma, currently with over 1200 subscribers. (C#)

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.

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.

dualshock.pd A Pure Data extension that captures Sony DualShock controller input and translates it into human-usable form. (C++)
Comes with a rudimentary AM/FM synthesizer, a duophonic synthesizer, a noise synthesizer, and a drumkit.

Education

Major Bachelor of Arts in Mathematics-Computer Science at the University of California San Diego

Minor Interdisciplinary Computing and the Arts with Music emphasis

references available upon request