

Bryan Bishop

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Objective: I like to write large amounts of great software. I also love to build up software teams.

Overview: Software consulting practice focuses primarily on web applications (Ruby/Rails/Sinatra, Python/Django, JavaScript) and mobile development (Android, iPhone, PhoneGap). Active community-builder and public speaker; published scholar (Nucleic Acids Research, J. Comp. Inf. Sci. Eng., etc.). Relatively well-known “Do-It-Yourself biohacker”.

EXPERIENCE

StyleOwner, Inc.

Application Developer

February – July 2012

<http://styleowner.com/>

- Web application development in Sinatra/DataMapper and Backbone/JavaScript (CoffeeScript).
- Designed and developed a queue-based scraping framework for managing hundreds of instances of PhantomJS (Spatula.js).
- Built a comprehensive API integration system for executing and debugging millions of remote API calls per day, including an admin control panel and API health visualizer for catalog/inventory syncing, order submission flow, scraping, etc.
- Wrote scrapers with a variety of frameworks- PhantomJS, mechanize, python-requests, lxml, and BeautifulSoup for multiple target websites and spanning millions of products.
- Wrote tests and brought unit testing to a 2-year-old codebase.

Bohemian Innovation, LLC.

Software Contracting

January – December 2011

<http://bohemianinnovation.com/>

- Trained and managed of a 6+ man programming team in Vietnam and Austin, Texas.
- Built a web+mobile application for video recording and distribution (Shoutz.com).
- Designed and developed of multiple mobile apps and web apps from scratch, including games for iOS and Android, both native (Objective C/Java) and web (JavaScript/CoffeeScript).
- Wrote PhoneGap plugins for iPhone/Android for AWS S3, video recording, custom video playing, custom/native controls, etc. PhoneGap experience includes versions 0.9.6 through 1.4.
- Improved PhoneGap/jQueryMobile click response time by >2x (500ms → 200ms).
- Apps: Extraction Zones, Socrative, Marbleous, YouPlus Dallas, Southwest Airlines, Shoutz, Famigo, etc. Other projects included jQuery, Ruby/Rails, Ruby/Sinatra, Python/Django, Box2D, GLES2, and tons of other fun tools.

Group KGR, LLC.

Software Contracting

January – May 2011

- Built a Facebook app for a company with a top 10 Android app (>100k installs/mo – over 3M active users). The app is a social music player and discovery tool on top of Google Maps.
- Built entire app in JavaScript: Backbone.js, underscore.js, YouTube API, Amazon API, Google Maps v3, and jQuery.

Aquameta, LLC.

March – May 2011

Software Contracting

<http://aquameta.com/>

- Built a comprehensive scraping system (operational at 50 Hz) to monitor keyword trends.
- Math trickery to figure out the relative landscape of trending search phrases based on global datasets.
- More math trickery to estimate the global amount of data *not* being captured and enhancing conclusions with this data.

Hopper, Inc.

February – December 2011

Co-founder

<http://hoppersdk.com/>

- Built a mobile app testing platform based on crowdsourcing.
- Developed an in-app bug reporting system for mobile apps based on ACRA for Android, and custom SDK for iOS and another SDK for JavaScript-based apps.
- Scratch-built a web application for programmers to manage their testing sessions and view bug reports or exceptions.
- Built dashboards for testers to join projects and test apps, and workflows for user acquisition.

Humanity+

September 2010 – April 2011

Associate Director of Research & Development

<http://humanityplus.org/>

- Background: Humanity+ is a non-profit organization focused on human enhancement-- making individuals better, stronger, faster and smarter.
- Executed the international Gada Prize at Humanity+ and oversaw its migration from Foresight Institute; also wrote & approved legal documentation (RepRap / 3d printing).
- Bridged the gap between human enhancement scene and the do-it-yourself biohacking scenes.
- Migrated hplusmagazine.com from Drupal 6 to Wordpress 3, including custom theme.
- Wrote project funding proposals and explored unique ways to create advanced technologies.

Bohemian Innovation, LLC.

July – August 2010

Software Contracting

- Designed and developed a Python/Tk application targetting OS X.
- Replaced obsolete proprietary software for processing image files from a niche TV industry.

Carbon Bay

February – July 2010

Facebook Application Programmer

- Developed a Facebook application (before their docs improved, even) for trading carbon credits as a virtual currency.
- App allowed users or businesses to bid on auctions for the carbon offset opportunity of trees that will be planted or other offset activities.
- Wrote backend in Python/Django.
- Managed in-game credit economy.
- Had the involvement of Alberta oil sands companies.
- App was presented at Harvard -- June 2010.

Betterhumans, LLC.

January – May 2010

Software Contracting

- Developed a secure, proprietary bioinformatics system involving whole genome analysis.

- Hurricane Party, Inc. December 2009 – June 2010
Co-founder & Lead Architect <http://hurricaneparty.com/>
- Brought the Hurricane Party iPhone app from concept to production by designing, programming, testing and deploying back-end server infrastructure.
 - Developed backend server infrastructure in Python/Django.
 - Implemented particular algorithms for large-scale party ratings and similarity search.
 - Participated in 3 Day Startup and Idea2Product.
 - Raised startup capital from Capital Factory.
- Telisite, Inc. December 2009 – June 2010
Software Contracting
- Developed web infrastructure for crowd-sourced reporting of local GSM hotspots and weak spots (low signal strength) for re-sale to mobile network operators.
 - Lots of Python/Django and web visualizations.
- Automated Design Lab (University of Texas at Austin) September 2008 – December 2009
Research Assistant <http://www.me.utexas.edu/~adl/>
- Worked on graph grammar algorithms and software including GraphSynth (.NET/C#).
 - Rewrote most of GraphSynth in Python for graph topology manipulation and grammar rules.
 - Built a gear train visualizer (based on the infamous glxgears OpenGL testing tool) for a thesis regarding automatic generation of gear train topologies.
 - Got published for work regarding VOICED: <http://en.wikipedia.org/wiki/VOICED>
 - Advised by Dr. Matt Campbell.
- Sathasivan Lab (University of Texas at Austin) September 2008 – May 2009
Research Assistant <http://www.sbs.utexas.edu/sata/>
- Designed, simulated and built a microfluidic device for algae/water separation.
 - Helped scale up algae from 10 gallons to 10,000 gallons for biofuel production.
 - The script for designing spiral microfluidic devices was featured on the BRLCAD website (Ballistics Research Lab in the Department of Defense).
 - Advised by Dr. K. Sathasivan.
- Singularity Institute for Artificial Intelligence July – August 2008
Software Volunteer <http://theuncertainfuture.com/>
- Summary: The goal of “The Uncertain Future” project is to provide software that allows those interested in future technology to form their own rigorous, mathematically consistent model of how the development of advanced technologies will affect civilization over the next hundred years.
 - Wrote lots of JavaScript (but it now seems to be in Java).
 - Helped transition the software into an open source release in 2011; see <http://github.com/kanzure/uncertainfuture>
- Ellington Lab (University of Texas at Austin) June – July 2008
Research Assistant <http://ellingtonlab.org/>
- Worked in a molecular biology lab as a Research Assistant.
 - Summer research project was to copy Erik Winfree's and Paul Rothmund's transcriptional logic gates.

- Setup and ran lots of PCR reactions and gel electrophoresis gels.
- Debugged broken PCR reactions, gel smears, etc.
- Advised by Dr. Andy Ellington.
- Resulting publication: Modelling amorphous computations with transcription networks (J. R. Soc. Interface; doi:10.1098/rsif.2009.0014.focus)

Cruise & Travel Connection, LLC.

March – June 2006

Software Contracting

- Built a PHP/MySQL web application for a travel agency.

Dimensional Studios, LLC.

April – August 2005

Software Contracting

- Developed a basic PHP/MySQL web application for apartment searching, renting, and subscriptions/updates (Apartment Scouts).

Lockhart WoodWorks, Inc.

2003 – 2005

Software Contracting

- PHP/MySQL work and basic web design. Webmastering. Photo galleries.
- Transitioned site away from Geocities.

ACADEMIC PUBLICATIONS

Dan M. Bolser, Pierre-Yves Chibon, Nicolas Palopoli, Sungsam Gong, Daniel Jacob, Victoria Dominguez Del Angel, Dan Swan, Sebastian Bassi, Virginia González, Prashanth Suravajhala, Seungwoo Hwang, Paolo Romano, Rob Edwards, Bryan Bishop, John Eargle, Timur Shtatland, Nicholas J. Provart, Dave Clements, Daniel P. Renfro, Daeui Bhak, and Jong Bhak. (2012) **MetaBase—the wiki-database of biological databases**. Nucleic Acids Research v40(D1): D1250–D1254. doi:10.1093/nar/gkr1099

Ken English, Aziz Naim, Kemper Lewis, Susanne Schmidt, Vimal Viswanathan, Julie Linsey, Daniel A. McAdams, Bryan Bishop, Matthew I. Campbell, Kerry Poppa, Robert B. Stone, Seth Orsborn. (2010) **Impacting Designer Creativity Through IT-Enabled Concept Generation**. Journal of Computing and Information Science in Engineering 10(3):031007. doi:10.1115/1.3484089

PUBLIC WORK & OPEN SOURCE SOFTWARE

Nanoengineer <http://github.com/kanzure/nanoengineer#readme>

- I have been maintaining the NanoEngineer (NE-1) project since November 2010.
- Transitioned Nanorex's project infrastructure from Subversion/Bugzilla to Git and GitHub.
- NanoEngineer is the world's first open-source CAD tool for nanotech, molecular machinery and molecular nanotechnology. It's really, really cool.

Pokémon Crystal <http://github.com/kanzure/pokecrystal>

- Disassembled a huge chunk of Pokémon Crystal with custom Python tools.
- Wrote a custom preprocessor and lexer to facilitate compiling source code.

- Makefile successfully compiles the ASM source code back into the original ROM.

GraphSynth <http://graphsynth.com/> <http://github.com/kanzure/python-graphsynth>

- Rewrote in 2009 the GraphSynth (originally written by Dr. Matt Campbell) core libraries from C# into Python.
- GraphSynth is basically a graph theory and graph grammar software suite.
- Generative grammars are a formal way of encoding heuristics, and graph theory is how to carry these out on top of data structures known as graphs.
- The UT-based lab uses GraphSynth to perform automated design of mechanical contraptions on a component knowledge level.

SKDB (Apt-get for Hardware) <http://gnusha.org/skdb/>

- SKDB provides tools and libraries to help standardize open-source hardware projects.
- The goal of SKDB is to provide a set of standards and software for downloadable hardware, or to make hardware as easy as Debian makes package management.
- Has many associated modules for CAD, for instance “lolcad” which is a small Python/NURBS library for parametric solid modeling.

INVITED TALKS

Available for Conferences and Technical Events

Interviews

“The Future and You” (2011)

part 1: <http://www.thefutureandyou.libsyn.com/the-future-and-you-march-16-2011>

part 2: <http://www.thefutureandyou.libsyn.com/the-future-and-you-march-23-2011>

Signal Radio (2010) <http://signal.hackerspaces.org/archive/2010-12-23-2200-dev-random.mp3>

Singularity Hub (2009) <http://singularityhub.com/2009/04/29/who-is-diybioorg/>

Talks

“Building a low-cost, open-source microfluidic DNA synthesizer”

FBI/DIYbio Workshop

Walnut Creek, California

June 13-15th, 2012

“Open Source Hardware and CAD”

Open Science Summit 2011

Mountain View, California

October 22 & 23rd, 2011

“meetlog” <http://quantifiedself.com/2011/08/bryan-bishop-on-meetlog/>

Bay Area Quantified Self Show&Tell #19 (Singularity University)

Mountain View, California

July 19th, 2011

"DIY Transhumanism"
FBI/DIYbio Workshop: The Evolution of Science and Biosecurity
New York, New York
July 13 & 14th, 2011

"Hello Android: How to make an Android app in 30 minutes"
Google IO 2011 Extended (Austin)
Austin, Texas
May 10 & 11th, 2011

"The Future of Open Hardware"
Institute for the Future
Palo Alto, California
March 1st, 2011

"Personal Manufacturing, the Gada Prize and the Future of Technology"
Humanity+ @ Caltech
Pasadena, California
December 4 & 5th, 2010

"Open Source Hardware"
Open Science Summit 2010
Berkeley, California
July 29-31st, 2010

"Apt-get for Hardware"
Singularity Studies, Rutgers University
June 30, 2010

"PythonOCC: Python Meets Solid Geometry CAD"
SciPy 2010
Austin, Texas
June 28 - July 3rd, 2010

"Do-It-Yourself Transhuman Tech"
H+ Summit 2010 (Harvard)
Boston, Massachusetts
June 12 & 13th, 2010

"Apt-get for Hardware"
Texas Linux Fest 2010
Austin, Texas
April 10th, 2010

"How to Make a Civilization Seed: Downloading Hardware Over the Web"
H+ Summit 2009
Irvine, California
December 5 & 6th, 2009

“Innovation Automation”
BioBarCamp 2008 (Institute for the Future)
Palo Alto, California
August 8-10th, 2008