

Ned Batchelder

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I have decades of experience building solid software to solve real problems, using diverse technologies. I am self-motivated, diligent, creative, committed and independent. I am a pragmatic architect, disciplined developer, effective communicator, resourceful problem solver, flexible worker, understanding leader, willing follower, energetic organizer, fast learner, and patient teacher. I can help you with your project.

Summary

2012–now **edX** — Architect for large online education open-source provider
2010–2012 **Stellated Software** — Freelance software development, training, and consultation
2009–now **Boston Python** — Organizer of one of the world's largest local Python user groups
2007–2010 **Hewlett-Packard** — Lead architect of sites and services in Django supporting printing and printers
2006–2010 **Tabblo.com** — Lead architect and developer of online photo-story-telling web site in Django
2002–now **nedbatchelder.com** — Blog • [coverage.py](#) • [cog](#) templating tool
2001–2006 **Kubi Software** — Architect of distributed collaboration product • Founding employee
2000–2001 **Blue Ripple** — Architect of content distribution web service in Java
1997–2000 **Iris Associates** — Project leader for Domino Designer • Architect of Domino XML support
1993–1997 **Lotus Development** — Developer of ground-breaking Domino web server
1986–1993 **Digital Equipment** — Developer of print system software • Corporate PostScript guru
1984–1986 **U. Penn GRASP Lab** — System manager and developer for robotics research lab
1976–1984 **Bronx Science / U. Penn** — Premier technical high school • Ivy League engineering education

Expertise

Domains: Consumer web, Web services, Photo, Printing, Design, Collaboration, Developer tools, Testing.
Languages: Python, C++, C, JavaScript, SQL, Java, PHP, C#, PostScript.
Tactics: Internationalization, Testing, Release strategies, Git, Subversion, Mercurial, Trac, Hudson.
Python: 2.x, 3.x, Django, C extensions, PDFlib, wxPython, numpy, PIL.
Web: HTML, CSS, Ajax, JSON, jQuery, XML, XSLT, XPath, memcache, nginx, CDNs.
Databases: SQL, MySQL, SQLite, SQL Server, Oracle PL/SQL, Lotus Notes, OLEDB, JDBC, ODBC.
Testing: Unit testing, Automated load testing, Coverage measurement, Usability testing.
Security: XSS, CSRF, SQL injection, Bot prevention.
GUIs: wxPython, HTML, Win32, MFC.

Career

edX

Oct 2012 – now

Architect and developer for **edx.org**, a large world-wide MOOC provider. Designed XBlock **component architecture** for extending the LMS. Built **sandboxing** utility, directed Python development. Led **open source** outreach efforts.

Technologies: Python, Django, Javascript, HTML5, MySQL.

Stellated Software LLC

Dec 2010 – Feb 2013

Solo **freelance** software consulting, specializing in Python. Architect and developer on a wide range of projects, from HTML5 ebook readers to Django web sites to medical cyclotron automation. **Full-stack developer**, from Javascript UI to server performance measurement/optimization to deploy strategies. Consulting on software leadership such as technology selection and team building.

Python training, multi-day **Python courses** for all levels.

Technologies: Python, Django, Javascript, HTML5, MySQL, CSS, C.

*Hewlett-Packard / Tabblo**May 2007 – Dec 2010*

HP **acquired Tabblo** in May 2007. While continuing to run tabblo.com, extended and repurposed the existing code base to support other book-editing sites, social network applications, and new printable Internet applications. Managed five engineers, coordinated releases, built new features.

Designed and implemented the **Tabblo Print Toolkit**, a templating system for structured content to produce high-quality printed pages from content pulled from the web. TPT powered many of AOL's print buttons.

Built **Tabbloid**, an RSS-to-print application built on TPT, including a print app running in the printer.

Led development of **ePrintCenter**, HP's web site for consumers to manage a new line of web-connected printers. ePrintCenter is localized into 26 languages on tight deadlines.

Technologies: Python, Django, MySQL, PDF, PDFlib, Python Imaging Library, gettext.

*Tabblo**Jan 2006 – April 2007*

Architected and led development for a consumer photo-sharing story-telling site, **tabblo.com**. Tabblo featured printed products including books, cards, posters, and print-at-home photo cubes.

Designed and implemented story representation with **multi-output rendering engine** capable of output to PDF, PNG, and both editable and read-only HTML. Designed the paper-craft photo cube.

Built access control layers, database migration facility, back-office tools, page factory pipeline. Led early usability testing. Analyzed and improved performance and scalability of the code. Established testing methodologies to prevent regressions. Contributed patches back to Django. Filed for 4 patents.

Technologies: Python, Django, MySQL, PDF, BeautifulSoup, PDFlib, Python Imaging Library.

*nedbatchelder.com**2002 – now*

Designed and built **nedbatchelder.com** through three incremental implementations. Blogging about technical and other topics. Wrote **coverage.py**, the foremost Python code coverage tool, including innovative branch coverage. Wrote **aptus**, a Mandelbrot explorer in wxPython with a Python C API extension for speed. Wrote **Nat's World**, a child's environmental photo game, on pygame.

Technologies: Python, Django, C, PHP, XSLT, HTML, CSS.

*Kubi Software**Sept 2001 – Jan 2006*

Founding employee of an early-stage startup building **email collaboration** plug-ins for Notes and Outlook. Built core architecture, protocols and object model. Built Notes implementation. Distributed load testing in Python. Wrote **cog** code generation tool. Multi-db transactional SQL implementation.

Technologies: C++, COM, XML, C#, Python, SQL Server, Oracle, SQLite, OLE DB, Notes C API.

*Blue Ripple**Aug 2000 – Sept 2001*

Engineering manager at startup building a web application for **intelligently routing digital content** from businesses to their customers and partners. Designed the core object and EJB patterns. Built a sophisticated metadata system using hierarchical and parametric queries. Designed the Oracle schema, including a schema update engine, and a server-centric schema validation procedure. Designed and built XU, an XML-based scripting language for automated XML-over-HTTP client scripts.

Technologies: Java, EJB, XML, SQL, Oracle.

*Iris Associates / Lotus**Feb 1997 – Aug 2000*

As **XML Architect**, designed the XML support for Domino, including the design of **DXL**, the Domino XML Language. Built the DXL exporter. Designed the architecture for dynamic generation of XML content under XSLT direction. Educated employees and customers about XML and its uses in the Domino environment.

Managed development of **Domino Designer**, the integrated development environment for Domino applications. Designed and implemented Show Single Category views.

Continued development and leadership of the **Domino Web Server** group. Designed and built new features, including a new formula execution model, and a patented method of caching dynamic web pages.

Technologies: C++, XML, XSLT, HTML, Schema-less db.

Lotus Development Corporation

Dec 1993 – Feb 1997

One of six developers that shipped the **Domino Web Server** in eight months. Built application development features. Built applications for domino.lotus.com web site. Evangelized the new technology.

As a side project, built **NotesPeek**, a graphical tool for developers to see the contents of Notes databases.

Built **Personal Network Assistant** for mobile Notes users, providing abstraction and paging of e-mail messages, with phone access to full text. The abstraction algorithm is now Notes' @Abstract().

Technologies: C++, Win32, HTML.

Digital Equipment Corporation

June 1986 – Dec 1993

Built a **Windows NT print monitor** to support Digital PrintServers. Project leader for the **Font Access Facility** server. Built **PSprint**, PostScript for dot-matrix printers adapting an Adobe PostScript interpreter.

Developed the **VMS print spooler** for Digital's PostScript printers. Built patented N-up feature. Wrote Digital's PostScript standard, influencing Adobe's designs. Represented Digital at ANSI and ISO meetings.

Technologies: C, PostScript, Bliss, VMS, X11.

University of Pennsylvania GRASP Lab

June 1984 – May 1986

System programmer and manager for robotics lab. Developed **psfig**, a troff tool for PostScript figures.

Wrote tools for distributed programming, cellular automata control software, and other printing utilities.

Technologies: C, PostScript, Unix.

Summer Jobs

1981 – 1983

Modified Apple II database software. Wrote text generation tools. Built video game design software.

Education

University of Pennsylvania, BSE in Computer Science

1984

Graduated cum laude. Graduate-level computer science courses in graphics, AI, and languages.

Bronx High School of Science

1980

Westinghouse Science Talent Search honors group, Math Team captain, Math Bulletin editor.

Recognition

Patents

Five patents granted on printing and web technologies.

Publications

Python Success Stories: "[Nat's World](#)," 2003, and "[Cog: A Code Generation Tool](#)," 2004.

"[XML's Future as a Native Type](#)" (interview), XML Magazine, Spring 2000.

"Teach Yourself Lotus Notes and Domino R5 Development" (foreword), October 1999.

"[Designing Web Applications with Buttons in Notes R4.6](#)," The View, November 1997.

"Bringing troff Up To Speed," UNIX Review, July 1987.

"Psfig: A ditroff Preprocessor for PostScript Figures," Summer 1987 Usenix Conference.

Public Speaking

PyCon 2015: "[Python Names and Values](#)"

PyCon 2014: "[Getting Started Testing](#)"

PyCon 2013: [“Loop Like a Native”](#)

PyCon 2012: [“Pragmatic Unicode, or, How Do I Stop the Pain?”](#)

PyCon 2011: [“Python-Aware Python.”](#)

PyCon 2010: [“Tests and Testability”](#) (invited speaker).

PyCon 2009: [“Whirlwind C Extensions”](#) and [“Coverage testing, the good and the bad.”](#)

Lotusphere, 1997 through 2000; Lotus Developer Conference, 1996 through 2000; DECUS, 1990.

References available, of course.