

Jack Bennett, PhD

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The latest version of this document is hosted at:

<https://jackbennett.co/wp-content/uploads/latest/jack-bennett-resume.pdf>

SUMMARY

- Versatile engineer and problem solver with a focus on back-end Python, real-time/streaming data processing and transformation, and data science and analytics.
 - Experienced and skilled in a range of programming languages; modern development tools, platforms, and best practices; scripting and automation; multi-platform networked environments; relational databases and other datastores.
 - Proven skills in complex technical problem solving, quantitative analysis, written and verbal communication and documentation, and cross-disciplinary teamwork. Earned PhD in Electrical & Computer Engineering from Brown University.
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SELECTED TECHNICAL SKILLS AND QUALIFICATIONS

Programming languages: Python, Lua, C++, C, bash, JavaScript, C#

Web frameworks: Django, Flask

Databases and Datastores: MySQL, PostgreSQL, SQLite, SQLAlchemy, Redis, Apache Kafka

Streaming, Messaging, and CEP: RabbitMQ, AMQP, ROS, FIX and proprietary binary trading protocols, Tibco Streambase

Version Control: git, Mercurial, Subversion

CI and Build Automation: AWS CodeBuild, CircleCI, Jenkins

Virtualization and Cloud: AWS, Linode, DigitalOcean; vagrant, VirtualBox

Collaboration and Written Communication: Trello, WordPress, GitLab, GitHub, Pivotal Tracker, Trac, L^AT_EX, Jira, Confluence

Analytical and Mathematical: Python tools (NumPy, pandas, SciPy, scikit-learn, TensorFlow, etc), Mathematica, R, Maple

PROFESSIONAL EXPERIENCE

- **Software Developer (Contract)**, Cardinal Health (Columbus, OH), 03/2020–present
 - Design and build back-end and front-end web applications and prototypes in support of enterprise-wide modernization effort.
 - Troubleshoot data engineering production issues in collaboration with teammates and colleagues across the business.
 - **Key skills and tools used:** Python, Flask, JavaScript/ECMAScript, React, SQL (PostgreSQL, MS SQL Server, SQLite) and SQLAlchemy, REST API design, git, zsh/bash, AWS, Pivotal Cloud Foundry (PCF), Docker, Jira, Confluence
- **Senior Software Engineer**, Path Robotics (Columbus, OH), 06/2019–02/2020
 - Develop plugins in C++ for visual feature identification in ROS (Robot Operating System) middleware platform: computer vision, image processing, point cloud processing, feature recognition, and related industrial robot tasks.
 - Develop ROS services in Python 3 for interoperability of robot sensing, vision, and control and other components.

- **Key skills used:** C++, CMake, Python (including NumPy, SciPy, TensorFlow, Open3D, OpenCV, and other scientific libraries), **git**, **bash**, AWS, vagrant, Docker, Jira, Confluence
- **Principal Consultant**, Improving (Columbus, OH), 08/2018–06/2019
 - Build / debug / test / maintain / support custom applications on several different platforms and technologies for the flagship innovation center of a major CPG client (Fortune 500)
 - Develop CMS applications for managing and versioning media assets in Django (Python) on Linux platforms (Ubuntu, Red Hat)
 - Develop product, brand, and marketing demonstration applications in Unity 3D platform (C#) for Windows 10, macOS, iOS
 - Approximately 90% remote role, with work on-site 1–3 days per month.
 - **Key skills used:** Python, Django, **git**, C#, Unity, JavaScript, **bash**, Microsoft Azure, Microsoft TFS, vagrant
- **Senior Software Engineer**, Potamus Trading LLC (Boston, MA), 04/2012–07/2018
 - Serve as senior software engineer on Securities Operations team, working on trade log analytics, clearing and settlement, accounting data.
 - Develop data-transformation systems to convert FIX and binary trade data logs into real-time data streams, OATS compliance data formats, Geneva portfolio accounting system files.
 - Lead dev team including one other engineer, designing datastore for efficient and searchable trade log archive.
 - Real time stream parsing and analytics of FIX logs to enable visualization in Streambase framework, custom web frameworks, and other tools.
 - Develop automation processes in Python, Lua, and **bash** to enable pre-market, trading day, and post-market processes to execute without human intervention.
 - **Key skills used:** Python, Lua, C, Django, **git**, **bash**, Apache Kafka, Pivotal Tracker, vagrant
- **Software Engineer**, InsightSquared (Cambridge, MA), 09/2011–04/2012
 - Design back-end data processing tools in Python using Django framework to perform generalized extract-transform-load (ETL) operations on customer data gathered from external APIs (Salesforce.com, Bullhorn, and other data sources and feeds).
 - Design web application front end pages using Python (Django framework), and JavaScript, for customer data analytics, data integration, and visualization, including sales forecasting, goal tracking, and others.
 - **Key skills used:** Python, Django, JavaScript **git**, **bash**, Pivotal Tracker
- **Contract Programmer**, Various clients, Cambridge and Boston, MA, 05/2010–08/2011
 - Design custom Web scraping and quantitative analytics tools using Python; design flat-file data model for sorting and aggregating results
 - Automate Web browsing and data collection using XPATH expressions and templates to identify web page elements of interest and to cross-check with reference data.
 - Experimental parsing project using Python adaptor to Twitter web services API (REST API) and OAuth authentication protocol
 - Experimental distributed computing projects using Python (principally Parallel Python module and multiprocessing module).
- **Associate, Portfolio Management & Risk**, PhaseCapital LP (Boston, MA), 09/2007–05/2010
 - Research, develop, and test novel trading strategies for automated high-frequency stock trading.
 - Build market data feed handlers for high-volume market data (tick data) in Python and C++, and interface with Streambase platform via adaptors (parse and record continuous, 15 Mbit binary market data stream in real-time).
 - Create trading strategy back-test harness and real-time trading system module in Python, to translate filtered market data into trading decisions for individual stocks. Communicate with other modules using custom Python socket networking library.

- Build, deploy, operate, and update automated systems for US equities trading, performing buy and sell decisions on trading volume up to 7.5 million shares per day.
 - **Associate Software Engineer**, Hitachi Data Systems (Waltham, MA), 10/2006–08/2007
 - Design new classes, modules, and packages for shared Python libraries used for remote control, installation, and communication with an in-house product laboratory consisting of content-addressable archive clusters running Java software on a custom Fedora Linux-based platform.
 - Maintain, extend, and refactor legacy code libraries consisting of Python, Perl and shell scripts.
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EDUCATION

- Ph.D., Electrical and Computer Engineering, Brown University (Providence, RI)
- M.A.Sc., Electrical and Computer Engineering, University of Toronto (Toronto, Canada)
- B.A.Sc. (honors), Engineering Science (Physics Option), University of Toronto (Toronto, Canada)