Alex Samuel

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I am a quantitative developer with a love for data and lots of experience in finance, software engineering, and physical science.

♡ Values

- As an engineer, I **serve specific needs** with domain knowledge and empathy.
- Instead of engineering dogma, I consider **cost-benefit tradeoffs**.
- My software needs **support** to be useful.
- My users care about **tools, libraries, and services**; architecture is implementation detail.
- It's not "big data" if it fits in memory on a r3.8xlarge instance.

✿ Tech

- I've worked on lots of **technology**: compilers, databases, data architecture, distributed systems, file formats, protocols, UI, UX, web, and high-performance software.
- I'm interested in **programming languages**, familiar with many, and expert in Python, C, C++, and Java.
- I enjoy **product** design and management, and working closely with users.
- I have a strong interest in **software infrastructure**. I build correct, consistent, and documented tools used beyond their original applications.

▪ıl Quant

- I've **implemented many models** in physics, finance, and biology.
- I know first-hand the challenges of both **small and big data** problems.
- I understand the importance of **looking at numbers**, not just processing them.
- My **technical writing and presentation** are strong, and I enjoy teaching.
- I find capital markets fascinating, but don't suffer from quant- or trader-envy.

💼 Experience

ActionIQ
Sep 2015–Oct 2015

Member of Technical Staff
Machine learning lead in stealth-mode marketing analytics startup.

Two Sigma
Aug 2013–Aug 2015

Engineer and Group Lead (VP)
Led the Modeling Languages team, responsible for programming languages and tools for more than one hundred researchers. Supported and extended proprietary languages and Java, Groovy, and MATLAB for data delivery and streaming and distributed data processing. Introduced, integrated, and supported Python as a supported research language. Taught classes and workshops to researchers and engineers.

Created and lead the Modeling Tools team, planning and delivering tools for alpha modeling. Worked with all parts of engineering organization to improve research productivity. Advised planning and architecture for compute and storage infrastructure.

GETCO
Nov 2011–Feb 2013

Quantitative Developer, U.S. Options Market Making
Implemented systems for quant research, risk monitoring, volatility curve visualization, and post-trade analysis. Built infrastructure for analytics, plotting, and data handling, and set up the group's quant development, job scheduling, reporting, and live data monitoring environments.

D.E. Shaw
Oct 2007–Aug 2011

Developer and Tech Lead, Equity Options (VP)
Responsible for software and data for a large and mature stat arb strategy.

Re-implemented the entire volatility forecasting system, to improve performance, correctness, reliability, and maintainability. Projects to implement production trade generation and to improve research tools, modeling of volatility instruments, risk estimates, simulation, and market data quality.

Designed and implemented a large fraction of the firm's Python infrastructure. Led the creation and selection of Python coding environment, standards, and tools. Trained developers and quants.

Lab49
Jul 2007–Aug 2007

Consultant
Client engagement at Deutsche Bank to extended CDO analytics and pricing application.

D.E. Shaw
Jul 2005–May 2007

Quant Developer, Institutional Asset Management
Developed software and performed research for structured equity products. Integrated new portfolio optimizer into trading and simulation software. Projects in transaction cost

management, performance attribution, simulation, trading system software, and other areas.

Developed software infrastructure for portfolio characteristics and performance analysis of historical and simulated portfolio data. Supported equities trading desk and front office operations, and managed and monitored account configuration in automated trading systems.

CodeSourcery
Feb 1998 - Oct 2001

Founder
Co-founded a consulting and software firm specializing in development tools. Jointly responsible for all technical and business aspects of a five-person team. Diverse projects included compilers, software tools, Web interfaces, and graphical user interface software. Contributed to GCC and several commercial compilers.

BBN
Sep 1995–Jul 1996

Software Developer
Worked on Prophet, a UNIX / Win32 data analysis system for statistical and genetic sequence analysis.

🎓 Education

Caltech

Ph.D. in Physics; BABAR Collaboration member
Research on rare decays of B mesons. Authored PyHEP, a platform for high energy physics analysis and presentation, and other software projects.

Harvard

B.A. *magna cum laude* **in Physics**

✔ Other

Coalition for Queens
2014–current

Volunteer
Helped with admissions, curriculum planning, and evaluation for Access Code Android cohort. Taught Java programming and technology topics. Co-honoree as 2015 Volunteer of the Year.

Books

C. Norton, *et al.*, *Beginning Python (Programmer to Programmer)*, Wrox, 2005.

M. Mitchell, A. Samuel, and J. Oldham, *Advanced Linux Programming*, New Riders, 2001; also published in Russian and Polish.