

FINANCIAL ANALYSIS

scientific computing solutions for quants






ENTHOUGHT

training • consulting • custom software

SCIENTIFIC COMPUTING SOLUTIONS FOR FINANCIAL ANALYSIS

At Enthought, we aim to improve the way quantitative data analysis and visualization are accomplished by providing powerful scientific computing software and support to financial analysts. We develop with Python, a powerful and concise programming language. This ensures that quantitative professionals are able to implement their ideas easily when using Enthought tools and techniques. We offer our software products, training, and consulting services to financial-sector clients worldwide.

Products	Training	Consulting
 Enthought Python Distribution	Python for Quants <i>3-day training module</i>	Rigorous process analysis
 Open source applications & libraries	Software Craftsmanship in Python, UIs and Visualization <i>1-day training modules</i>	Custom library & application development
 Domain-specific tools for quantitative analysis & visualization	Custom courses on-site	Visualization design

Robust software, powerful products.

Our developers were the primary creators of SciPy and NumPy, two powerful scientific computing libraries. While maintaining these and other open-source tools, we also develop the Enthought Python Distribution (EPD), a kitchen-sink-included distribution of Python especially geared towards end users needing to visualize and analyze high volumes of complex data. Finally, we regularly expand our domain-specific application and library offerings with applications and tools specifically designed for financial applications.

Expert training.

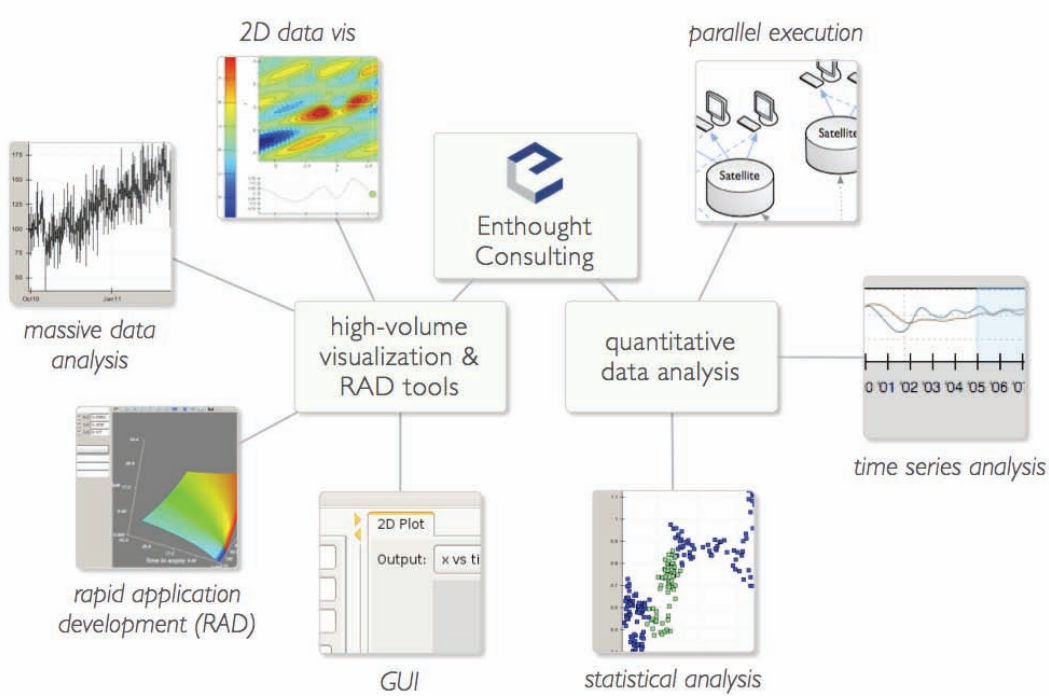
Enthought's targeted training courses are for quantitative analysts who would like to learn more about how to use Python in their work. In addition to our open course, Python for Quants, we also offer on-site customized courses for organizations world-

Specialized solutions for your organization.

Enthought's consulting services provide custom-built software to a number of clients in the financial sector. Our expert programmers develop powerful applications to ease the management and real-time analysis of large datasets.

Enthought Consulting

Enthought consults with you to solve your most challenging technical computing problems. We can build complete software applications that help you analyze your financial data rigorously and visualize it in compelling ways.



We are committed to customer satisfaction and the production of excellent software. To this end, we work according to the following principles:

Scientists first, developers second.

The majority of our staff has advanced degrees in science and engineering as well as extensive experience in programming, software architecture, and development. We have the domain expertise to solve the toughest financial analysis problems along with the development experience to implement systems to meet your business needs.



Travis Oliphant, President at Enthought, was the primary author of NumPy, the essential numeric library for Python.



Peter Wang, Chief Technical Officer at Enthought, wrote Chaco, a versatile 2D plotting tool for interactive Python data visualization.

Build on the right tools.

Our extensible and powerful software is built with a coherent Python toolset. Scientists, engineers, and analysts appreciate Python for its clarity and accessibility, allowing them to write scripts and encode their algorithms with ease. Meanwhile, developers can write robust, full-featured scientific applications using advanced Python tools.

Most of our consulting work is based on the Enthought Python Distribution (EPD), which provides an enterprise-level Python environment bundled with additional modules that make it ideal for interactive technical computing and cross-platform rapid application development. EPD allows us to ensure that the software we build can be easily installed and run consistently across an enterprise. EPD can be installed with a single-click on Windows, Mac OS X, RedHat, and Solaris operating systems.

Release early and often.

Collaborating with clients in an iterative development model, we deliver usable versions of the application early and often. Continual client review allows us to evaluate performance and refine requirements, enhancing the quality and utility of the end



Custom Financial Software

Value at Risk

Client: Wall Street Firm

CHALLENGE

This project, performed for a Wall Street firm, was designed because a hedge fund needed an implementation of Value at Risk (VaR) on a daily time horizon to estimate the risk of its portfolio. Their data came from disparate, inconsistent sources including components with behaviors like seasonality to be accounted for. Our VaR application was based upon the financial industry de facto standard, the RiskMetrics VaR methodology. However, deviations from that methodology to account for seasonality and non-linear portfolios were required to create more robust and reliable estimates.

SOLUTION

Enthought started with the RiskMetrics VaR methodology, a de facto standard in the financial industry. The instruments in the portfolio were mapped to a constrained set of “risk factors” representing the majority of market variation. For many instruments, these mappings were linear multipliers against the risk factor, but some were nonlinear and estimated with a quadratic mapping. A library was made that could map a variety of derivative instruments on the market. The correlations of the risk factors were estimated from historical data. The time series used as sources for the risk factors and the methods for assembling them are configurable by a text file. In fact, there were two configurations in common use, one that followed the RiskMetrics methodology closely, and one that deviated with some improvements like taking seasonality into account. It was found that the RiskMetrics-recommended Expectation Maximization algorithm used to account for missing data was entirely inadequate, so a new algorithm from recent research papers was implemented. For nonlinear portfolios, the RiskMetrics algorithm was also avoided for failure to converge. Instead a method based on characteristic functions of probability distributions was used. The resulting application was deployed as a service that other web applications in the client's infrastructure could use to provide live VaR estimates.

Enthought, Inc.

Enthought was founded in 2001 by two engineers with a passion for scientific computing. Since then, the company has grown to nearly two dozen employees — many with advanced degrees in Computer Science, Engineering, or Mathematics. Based in Austin, Texas, Enthought serves national and multi-national clients.

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