

BRIAN G. PETERSON

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SUMMARY

Seeking to focus on fund analytics while utilizing my deep industry, process, and technical experience to increase productivity for myself and my team. Senior technical architect, quantitative financial analyst, and project delivery leader with broad-based consulting and line management expertise. Over fifteen years experience in design, construction, and integration of technically innovative systems in multiple industries including insurance, mortgage, health care, automotive, manufacturing, investment banking, brokerage, and alternative investments.

APPLICABLE SKILLS

Heuristic Fund Screening: Investments in a portfolio of alternatives involve both heuristic and quantitative components. We assisted one of our large institutional clients in standardizing the heuristic process for screening managers, helping to set guidelines for describing what traits in a manager should be considered beyond direct performance analysis. Our client presented our process to the investment committee for approval, and subsequently hired a new analyst on his staff to be responsible for day to day implementation of the process.

Quantitative Investment Screening: Hedge fund returns for most styles and funds are not normally distributed, so statistical methods that rely on or assume a normal distribution are very fragile for analyzing hedge funds. I developed **R** statistical analytics functionality that match the latest econometric research in analyzing hedge funds and other asset classes for risk, autocorrelation (identifying problems of illiquid or manually marked books), persistence of returns, style analysis and style drift, factor modeling, and other areas.

Portfolio Construction: Choosing the size of an investment is a complementary process to choosing the instrument to invest in. I participated in creation and refinement of the portfolio construction methodology for the Explorer Global Macro Fund. I've developed hedge fund style selection optimizers for a fund of funds or institutional setting, as well as a utility function based optimizer for asset allocation (fund weighting) within a single or multi-style portfolio of hedge funds. I have evaluated or used multiple different optimizer methodologies to make sure that the correct optimization method is used for portfolio construction based on nature of the specific portfolio.

Dynamic Hedging: Both for Explorer and for one of our institutional clients, we developed quantitative models to calculate the correct hedging instrument for portions of the portfolio based on the correlations of the combined portfolio to several highly liquid derivatives. This capability gives a portfolio manager both the ability to "buy insurance" when there is a good return stream to protect, and to react to sudden changes in the markets without having to unwind a large number of positions that you might still be confident of over a longer time frame.

Quantitative Modeling: Developed and productionized quantitative models for long-cycle macro events. Economic cycles move in slow motion, subject to shocks and events, so the quantitative models for predicting these cycles and taking advantage of them are very different from the classic factor model, mean reversion, and arbitrage strategies for shorter cycle trading. This generally fits into the academic research in "dynamic or alternative beta". I have also tested and developed a number of more traditional "alpha" trading models, and can apply this knowledge to analysis, risk measurement/control, hedging, or replication of the returns of an existing manager or style.

Portfolio Management and Trade Processing: We developed and licensed to our clients a middle and back office portfolio management and trade processing system that handled 300,000-500,000 trades per month across more than 12 prime/clearing brokers and 50+ prime broker accounts. The system handled trade reconciliation, trading P&L, multi-currency, and multiple instrument classes.

Process Discovery, Analysis, Automation: Productivity growth often hinges upon the ability of an organization to discover, analyze, refine, and automate business processes that were once ad-hoc and manual. I have deep experience in process discovery and analysis from my years as a management consultant, and have applied these skills for the last four years in the hedge fund industry.

Technology Expert: I have deep technical implementation expertise across most modern computational technologies. Once processes have been identified as candidates for automation, an implementation path must be chosen that is both efficient and economical. I can manage and add value to the entire technology project lifecycle.

METHODS and TECHNOLOGIES

Analytical Methods: non-normal distribution analysis, Risk-adjusted return analysis, VaR (*see Risk below*), correlation analysis, Sharpe, Sortino, Omega, Hurst, Herfindahl, Ljung-Box, Bera Jarque, multiple pricing models (*see Pricing*), multiple regression methods (*see Regression*), multiple optimization methods (*see Optimization*)

Risk: drawdown analysis, semivariance, downside deviation, parametric mean-VaR, simulated scenario mean-VaR, Monte Carlo mean-VaR, Basel II VaR/capital metrics, Cornish-Fisher VaR, multivariate four moment VaR, Expected Shortfall (CVaR), Beyond VaR, Incremental, Component, and Marginal VaR, shock/slide scenario analysis

Optimization: Markowitz (mean variance), brute force, linear programming, resampling, heuristic rules, simulated annealing, threshold accepting, and utility based optimizer methodologies

Pricing: factor analysis, PCA, quadratic, cubic, Market Model, technical indicators (ranges, momentum, volatility, volume), Monte Carlo simulations, Bayes, Robust, ARIMA, GARCH, term structure(bonds), 2-4 moment CAPM, *Regression*

Regression: univariate and multivariate linear, least squares, nonlinear, quantile regression; vector autoregression

Modeling: technical indicators, arbitrage, mean-reversion, long-cycle macro models, industry/style portfolios

Analytical Tools: R/S/S-PLUS, Rmetrics, SPSS, Mathematica, Maple, MatLab, MathCAD, Octave, Quantian

Other Technologies: Application Servers, Databases, Middleware, Security, Cryptography, Workflow, CRM, ERP, multiple programming languages, multiple operating systems. *Details available upon request.*

Methodologies: Object Oriented, Patterns, Extreme/Rapid Prototyping, Functional Decomposition, RUP/UML, Use Case, SEI Software Capability and Maturity Model (CMM), Test Driven Development, JAD, Six Sigma

PROFESSIONAL EXPERIENCE

Diamond Management Consultants, Chicago, IL **2007**

Knowledge Leader – Finance

- Lead strategy and technology projects for global Financial Services clients.
- Provide industry leadership in quantitative methods and product development for alternative investment.

Explorer Fund Advisors, Chicago, IL **2003-2006**

Explorer Technology Services, Chicago, IL

Chief Technology Officer, Lead Analyst

- Developed quantitative investment models, portfolio construction algorithms, and portfolio optimization
- Calculate risk and valuation metrics: Automate specific hedge selection for a portfolio or instrument
- Managed the technology and strategy consulting business and resources for Explorer's institutional clients

CryptoRights Foundation, San Francisco, CA **2002-2003**

Lead developer – Highfire

- Lead design and development of a secure cryptographic communications platform for use by human rights workers around the world.
- CryptoRights is a nonprofit, nongovernmental organization (NGO) dedicated to the protection of human rights workers and the information they collect and communicate for the public good.

eLoyalty, Lake Forest, IL **1994-2002**

Vice President – Technology (started as a Programmer/analyst/Sr. Consultant)

- Designed and developed large, technically complex systems using a wide range of technologies.
- Project Lead for teams of up to 30 eLoyalty and 20 client resources with budgets of \$2-20 million/yr.
- Subject Matter Expert and QA across multiple technology projects, in addition to line delivery and sales.

PD&C, Inc., Madison, WI **1989-1994**

Owner

- Grew the company from a 1-15 employees. Successfully sold the company to my largest client.
- Designed and developed several applications in the virtual reality and scientific simulation fields.