Job Seeker Allen, TX Quantitative finance/trading strategies Work Experience Stochastic Volatility Models September 2012 to Present Signal Processing/AI Medium Frequency Strategie Trading Strategy development for medium frequency algorithmic strategies employing wavelet signal processing and machine learning algorithms with total capacity exceeding $10 billion. Signal-processing/AI algorithmic strategies for commodity and currency futures for medium frequency 1-15 min data with great results on historical data where the key issue is to use a combination of technical indicators simultaneously at multiple frequencies using wavelet decomposition for signal processing Developed stochastic volatility model for option pricing that fits volatility surfaces much better than the Heston/Bates models. It is semi-closed form (Heston-type) option pricing model that incorporates long memory and volume effects with jumps in price and volatility Python developer Stanford University Statistics Dept - Palo Alto, CA July 2012 to September 2012 for convex optimization * Translated a distributed system for running convex optimization programs in parallel from MATLAB/UNIX to Python using cvxopt in PiCloud using a CouchDB database to track results of large numbers of runs * Co-author of upcoming paper in PNAS with David Donoho, 'Deterministic Compressed Sensing Matrices Matching the Phase Transitions for Gaussian Random Matrices' Strategist/Trader Babel Research, LLC - Cambridge, MA March 2007 to July 2008 * Babel Research is a hedge fund formed in March 2007 based on proprietary behavioral metrics generated from internet data. * Developed and traded commodity futures, equities, and equity options based strategies that are enhanced by Babel metrics. * Assisted with various aspects of setting up of the company including administrative tasks, automation of trading strategies, statistical analyses required for strategy development. Vice President, Head of Quantitative Analysis Gresham Investment Mgmt - New York, NY March 2005 to March 2007 * Product expertise for Lehman Brothers Strategic Commodities Fund with above $4 billion assets under management * Applied artificial intelligence and statistical techniques for return prediction for futures, based on 134 macroeconomic, futures market, weather, supply/demand factors. * Managed development of proprietary historical index simulators to obtain quantitative performance attribution of Lehman SCF benchmarked to commodity indices of Dow Jones-AIG and

Goldman commodity indices. Analysis led to improvement of trading implementation of 3% per annum. * Developed and implemented novel portfolio rebalance strategies based on fractal behavior of commodity price movements: 20 year back-test showed improvement of above 1.5% per annum. * Developed relative value strategies of commodity producing stocks versus underlying commodities. * Developed asset allocation strategies based on custom risk-reward metrics and implemented custom portfolio optimization algorithms * Supported SCF sales by statistical and historical analysis of futures vs. spot, term structure models, coincident movement of SCF with macroeconomic factors (R2=94.7% over 10 years), etc. * Developed methods of estimating hedging activity of companies by of SEC statements in Edgar database. Scientist IIDeveloped and implemented novel algorithms Predicant Biosciences, Inc - San Francisco, CA September 2002 to March 2005 for pattern recognition and signal processing * Support vector machines, kernel Fisher discriminant analysis, etc * Implementation in C++ using research from Stanford Optimization Labs * Performance comparable to commercial optimization software * Two patents pending for signal processing algorithm * Coordinated collaboration with statisticians at Stanford (Dave Donoho, Rob Tibshirani) and implemented signal processing and compression strategies using wavelets, deconvolution, and other numerical techniques. * Coordinated with mass spectrometry experts to model the mass spectrometer point-spread functions using a statistical physics model of an ideal reflectron mass spectrometer for model-based signal processing. * Obtained proof-of-concept results of 18% misclassification for lung cancer biomarker discovery study. This result was superior to currently published results. Visiting Ph.D. Student/Instructor MIT - Cambridge, MA 1999 to 2001 TA for graduate probability class of Dan Stroock. Principal Software Architect Ecosystems, Inc - New York, NY 1999 to 2000 * Project followed UML standards, used Design Patterns, STL, and other numerical Generic Programming libraries. * Traveled to clients to gather requirements, present software design for feedback, present new extensions to our product. Senior Consultant Technology Solutions, Inc - New York, NY 1997 to 1998 * Consulting for Dutch bank Rabobank, developed a real-time market data retrieval system from Reuters terminal and worked with a team to upgrade their back-office/trade system. * Consulting for Donaldson, Lefkin & Jenrette, detailed

workflow for improvements in back-office operations. Fixed Income Research Analyst Lehman Brothers - New York, NY 1995 to 1996 * Maintained and enhanced the term-structure model (Heath-Jarrow-Morton) used to price and hedge interest rate derivatives in the group headed by Andrew Morton. * Developed a Cost-of-Funds Index model for Kaushik Amin for mortgage-backed securities. * Developed in-house software system used to manage the daily hedging of interest-rate derivative books - daily automated calculation of sensitivities of derivative price to term structure movements. Education Ph. D. in Mathematics Columbia University - New York, NY 1996 to 2000 Mathematics Princeton University - Princeton, NJ 1991 to 1995

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