

CURRICULUM VITAE

Andrew Kumiega

Email: AKumiega@IIT.edu

Academic Summary

My research combines information technology, data analytics, and industrial engineering techniques to create unique systems/algorithms for the financial industry. I have successfully taught classes in all three disciplines, which prepares students to design, implement and test algorithms in a wide group of industries.

I believe the next revolution in data analytics will be the creation of failsafe algorithms for real time bidding systems based on the ISACA governance framework. The new governance frameworks will allow firms to create new virtual exchange structures and data driven bidding algorithms that are statistically stable.

Executive Professional Summary

I am a highly technical, hands-on risk professional that bridges the gap between business, quantitative modeling, and technology. I was hand-picked by senior leadership teams at multiple firms to turn around underperforming operations. I am a trusted leader, mentor, and natural motivator with exceptional leadership experience in directing resources and promoting career growth. I am known for managing fast paced data analytic teams that successfully balance extreme timelines, Six Sigma quality levels, and exceed bottom-line revenue objectives. I have the ability to create a learning culture in high stress environments, which leads to high-performance teams.

Teaching Philosophy

I strongly believe in challenging students of all levels. I feel that students who are allowed to just take tests and not participate will not reach their full potential. I insist that all students answer questions during class in upper division courses. My classes involve a great deal of student interaction to continuously monitor the progression of all students. The continuous monitoring of the class allows for modifications of the course examples to ensure the students are internalizing the material being covered. My goal for each student is that he or she will be able to prove in an interview that they understand the topics presented in my class, as opposed to just earning a grade.

Research Goals

My long term research plan is to continue to expand my research on the application of industrial engineering techniques (quality, reliability, time series, signal processing, data analytics, etc.) to algorithm construction in various new exchange structures, such as Uber, by creating new unique governance structures for the algorithms and the actual electronic exchanges.

A. EDUCATION

ANDREW KUMIEGA

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Ph.D. Industrial Engineering and Operations Research, June 1996, University of Illinois, Chicago
Thesis: "Logic Directed Hierarchical Dynamic Programming"

M.S. Finance, September 1998, Stuart School of Business, IIT, Chicago

M.S. Industrial Engineering, June 1991, University of Illinois, Chicago
Thesis: "Planar Rover Navigation by Hierarchical Dynamic Programming"

B.S. Engineering Management, June 1985, University of Illinois, Chicago,
College of Engineering
Majors: Industrial Engineering and Business Administration

B. REFERREED PUBLICATIONS

I. Journal Publications

"Beyond the Flash Crash: Systemic Risk, Reliability, and High Frequency Financial Markets" with G. Sterijevski and B. VanVliet. *Journal of Trading*. Vol. 11, No. 2. 2016. 6.

"Unconstrained Strategies and the Variance-Kurtosis Trade-off" with B. VanVliet and T. Xanthopoulos. *Applied Financial Economics*. Vol. 24, No. 15. 2014. 11.

"Perspectives on Hedge Fund Herding: A Survey of Analytical Methods" with G. Sterijevski and B. VanVliet. *Wilmott*. Vol. 2014, No. 72. 12.

"Trading System Capability" with T. Neururer and B. VanVliet. *Quantitative Finance*. Vol. 14, No. 3. 2014. Featured Article.

"The Rationale for AT 9000: An ISO 9000-style Quality Management System Standard for Automated Trading" with R. Cooper, J. Northey and B. VanVliet. *Journal of Trading*. Vol. 8, No. 3. 2013.

"A Practical Real Options Approach to Valuing High Frequency Trading System R&D Projects" with B. VanVliet. *Journal of Trading*. Vol. 8, No. 3. 2013.

"Bank on It: Ethics and Quality Will Strengthen Automated Trading and Finance" with M. Davis and B. VanVliet. *Quality Progress*. June, 2013

"Ethics, Finance, and Automation: A Preliminary Survey of Problems in High Frequency Trading" with M. Davis and B. VanVliet. *Science and Engineering Ethics*. Vol. 19, No. 3. 2013. 17.

"Implied ICA: Factor Extraction and Multi-Asset Derivative Pricing" with T. Neururer. and B. VanVliet. *Journal of Derivatives*. Vol. 19, No. 4. 2012. 18.

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“Preventing Another Crisis: Quality Data for MBS Markets” with B. VanVliet and A. Xanthopoulos. *Accounting and Finance Research*. Vol. 1, No. 1. 2012. 19.

“Investor Behavior and Hedge Fund Stability” with T. Neururer and B. VanVliet. *Journal of Investing*. Vol. 21, No. 2. 2012

“Automated Finance: Assumptions and Behavioral Aspects of Algorithmic Trading” with B. VanVliet. *Journal of Behavioral Finance*. Vol. 13, No. 1. 2012.

“Multifactor Index Variance: The Case of the SPX 2000 to 2010.” with T. Neururer. *Journal of Futures Markets*. Vol. 10. 2011.

“Independent Component Analysis for Realized Volatility: Analysis of the Stock Market Crash of 2008” with T. Neururer and B. VanVliet. *Quarterly Review of Economics and Finance*. Vol. 51, No. 3. 2011.

“On Hedge Fund Structures: Allocation Models for Illiquid Investments in New Ventures” with M. Lech and B. VanVliet. *Journal of Wealth Management*. Vol. 3, No. 13. 2010.

“Trading Model Uncertainty and Statistical Process Control” with J.F.O. Bilson and B. VanVliet. *Journal of Trading*. Vol. 5, No. 3. 2010.

“Trading Machines: Using SPC to Assess the Performance of Financial Trading Systems” with Z. Hassan and B. VanVliet. *Quality Management Journal*. Vol. 17, No. 2. 2010.

“In Crisis, Give Credit to Quality” with B. VanVliet. *Quality Progress*. December, 2008.

“Default Risk Hedging for Lease Portfolios” with D. Cernauskus. *Journal of Equipment Lease Financing*. May, 2008.

“Quantifying Project Management Delay Cost through Simulation Modeling.” with D. Cernauskas. *Cost Engineering*. Vol. 50, No. 5. 2008.

“Optimal Trading of ETFs: Spreadsheet Prototypes and Applications to Client-Server Applications” with B. VanVliet. *Interfaces*. Vol. 38, No. 4. 2008.

“Measuring and Interpreting Organizational Culture.” *Journal of Nursing Administration*. June 1990.

II. Journal Submissions Under Revision

None

III. Refereed Conference Proceedings and Presentations

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“Cross-Functional Methodology for Analytics.” ISACA.ORG CACS North American Conference, May 2017, Las Vegas, Nevada

“Reliability Analysis for Algorithmic Trading and Financial Compliance” with B. VanVliet. 2014 Academy of Financial Services Conference. October 16-17, Nashville, TN.

"Iso-Effect Contour Lines and Implications about the Canadian and US Bond Markets" with A. Xanthopoulos and B. VanVliet. Presented at Twentieth Annual Conference of the Multinational Finance Society. July, 2013. Istanbul, Turkey.

“Reliability Analysis for Financial Compliance” with G. Scimeca, B. VanVliet, and A. Xanthopoulos. Presented at 1st Annual International Conference on Industrial Systems. 2013. Athens, Greece.

“A Model of Hedge Fund Stability” with T. Neururer and B. VanVliet. Presented at the Financial Management Association 2011 Annual Conference. October 2011. Denver, Colorado.

“Controlling Trade Selection Algorithms with Statistical Process Control” with B. VanVliet. Accepted and presented at Financial Management Association 2009 Annual Conference. October, 2009. Reno, Nevada. This paper was a semi-finalist for the best paper award in market microstructure.

“On Hedge Fund Structures: Allocation Models for Illiquid Investments in New Ventures” with M. Lech and B. VanVliet. Presented at the 21th Annual Meeting of the Academy of Entrepreneurial Finance. September, 2009. Chicago, Illinois.

“A Cross-Functional Methodology: Software Development for Analytics-Driven Firms.” Invited paper presented at the 4th World Congress for Software Quality. September, 2008. Bethesda, Maryland.

“The Money Document: Seeding Hedge Fund Entrepreneurs” with B. Batavia and B. VanVliet. Accepted paper presented at the 3rd European Conference on Entrepreneurship and Innovation. September, 2008. Winchester, England.

“A Formalized Methodology for Raising Capital to Seed Hedge Fund Start Ups” with B. Batavia and B. VanVliet. Accepted paper presented at the 20th Annual Meeting of the Academy of Entrepreneurial Finance. September, 2008. Las Vegas, Nevada.

“A Methodology for Trading and Investment System Development: A Taxonomy of Risk” with B. VanVliet. Presented at the 2007 Joint Statistical Meetings of the American Statistical Association. November, 2007. Salt Lake City, Utah.

“Time is Money in Trading: Rapid Development of Algorithms Using Excel” with B. VanVliet. Presented at the INFORMS Annual Meeting. November, 2007. Seattle, Washington.

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“Risk Management for Complex Calculations: EuSprig Best Practices in Hybrid Applications” with D. Cernauskas and B. VanVliet. Presented at the EuSprig 2007 conference. July, 2007. London, England.

“A Software Development Methodology for Research and Prototyping in Financial Markets” with B. VanVliet. Presented at the EuSprig 2006 conference. July 5-7, 2006. Cambridge, England.

“A Software Development Methodology for Financial Markets” with B. VanVliet. Presented at the 11th International Conference on Software Quality on October 23, 2001.

V. Working Papers

“Independent Component Analysis for Portfolio Construction” with G. Sterijevski and B. VanVliet.

“HFT Ethics Body of Knowledge” with M. Davis and B. Van Vliet.

“HFT R&D: A Real Options Approach” with G. Sterijevski and B. VanVliet.

“One Vol to Rule Them All” with G. Sterijevski and B. VanVliet.

“A Real Options Approach to Staged Innovation Projects” with G. Sterijevski and B. VanVliet.

“A Real Options Approach to Private Equity Funding” with W. Samedy, G. Sterijevski and B. VanVliet.

“Trading Realized Volatility Forwards versus Implied Volatility for Portfolio Hedging” with G. Sterijevski.

C. NONREFEREED PUBLICATIONS

I. Books

Quality Money Management, with B. VanVliet, Academic Press/Elsevier, 2008.

II. Chapters in Edited Books

“Quality in the Front Office” with B. VanVliet. Chapter for *Risk Management in Finance: Six Sigma and Other Next Generation Techniques*. John Wiley & Sons. 2009.

III. Published Articles

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"Model Portfolio Management." with P. Perkins and B. VanVliet. *Automated Trader*. Q2 2009.

"Quality Management in Financial Markets" with B. VanVliet. *Journal of Global Financial Markets*, Fall, 2003.

"Obsolescence of the Naked Trader" with B. VanVliet. *Journal of Global Financial Markets*, Winter, 2000.

D. TECHNICAL PRESENTATIONS

I. **Speaker**

Quant-IT — Venice, Italy, March, 2017 (invited), "Real Option Framework for Private Equity"

Quant-IT — Venice, Italy, March, 2016 (invited), "One Vol to Rule Them All"

Quant-IT — Venice, Italy, March 1, 2014 (invited), "Independent Component Analysis for Hedgefund Performance."

Quant-IT — Venice, Italy, March 1, 2013 (invited), "AT9000 (ISO) a Seal of Quality for Quantitative Finance?"

HFT Conference 2013, Terrapinn — London, UK, February 13, 2013 (invited), "A Global Quality Standard for Automated Finance?"

The Trading Show New York, Terrapinn — New York, New York, December 1, 2012 (invited), "AT9000 (ISO) for Quantitative Finance?"

Northwestern Engineering, Masters of Science in Information Technology guest lecture series — Chicago, Illinois, June 24, 2012 (invited), "Software Project Management for Building High Frequency Trading Systems."

The Trading Show Chicago 2012, Terrapinn — Chicago, Illinois, June 24, 2012 (invited), "ICA Applied to Finance Seminar."

HFT Trade Show, In Vantage Group — London, UK, February 28, 2012 (invited), "An Ethical Dilemma for HFT?"

Quant-IT 2012 — Venice, Italy, February 10, 2012 (invited), "CPK versus the Sharpe Ratio."

The Trading Show London — London, UK, February 1, 2012 (invited), "Ethics for HFT."

Quantitative Asset & Risk Management Workshop 2011 — Milan, Italy, February 8, 2011 (invited), "Assessing How Efficient Back Testing Can Optimize Your Trading Performance."

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Quant Congress Europe — London, UK, November 9, 2010 (invited), “Efficient Back Testing for Optimizing Algorithm Performance.”

High Frequency Trading World Europe 2010 — London, UK, November 8, 2010 (invited), “Assessing How to Efficient Back Testing Can Optimize Your Trading Performance.”

Inside Market Data 2010 Chicago — Chicago, Illinois, September 11, 2010 (Keynote), “Steps for Building High Frequency Trading Systems.”

CFTC simulcast in Kansas City and Washington lecture on software quality for finance — Chicago, Illinois, June 6, 2010 (invited), “Quality Processes for Regulation of High-Frequency Trading Systems.”

High-Frequency Trading Leaders Forum 2010 — New York, New York, May 27, 2010 (invited), “SPC for Trading System Design.”

Microsoft’s Advancements in Quantitative Finance Conference — Chicago, Illinois, April 30, 2008 (invited), “Out of the Chaos.”

Microsoft’s Advancements in Quantitative Finance Conference — New York, New York, December 12, 2007 (invited), “From Math to Kiazen.”

II. **Panelist**

Trading Show Chicago, Terrapinn — Chicago, Illinois, June 24, 2013 (Panel Lead), “AT9000.”

Traiana Meet and Greet for HFT — Chicago, Illinois, March 20, 2013 (Panel Lead), “Outsourcing of Trading Technology.”

High Frequency Trading Leaders Forum 2012 — Chicago, Illinois, October 9, 2012 (Panel Discussant), “Regulatory Impact of HFT.”

Inside Market Data Chicago — Chicago, Illinois, September 24, 2012 (Panel Discussant), “Data Quality for Risk Management.”

High-Frequency Trading Leaders Forum 2011 — Chicago, Illinois, June 17, 2011 (Panel Discussant), “HFT Regulations.”

High Frequency Trading World 2010 — New York, New York, December 6, 2010 (Panel Discussant), “Future of High-Frequency Trading.”

E. **INTELLECTUAL DEVELOPMENT/CONTINUING EDUCATION**

Attended:

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ISACA CACS North American Conference -- Las Vegas, Nevada, May, 2017.

Quant-IT — Venice, Italy, March, 2017.

ISSA Annual Conference –Dallas, Texas, November 2016.

ISACA Chicago Chapter Annual Conference — Chicago, Illinois, June, 2016.

ISACA CACS North American Conference -- New Orleans, Louisiana, May, 2016.

Quant-IT — Venice, Italy, March, 2016.

ISACA Chicago Chapter Annual Conference — Chicago, Illinois, June, 2015.

ISACA Chicago Chapter Annual Conference — Chicago, Illinois, June, 2014.

Trading Show Chicago, Terrapinn — Chicago, Illinois, June 12, 2014.

Chicago Chapter 54th Annual Seminar — Chicago, Illinois, April 7, 2014.

Trading Show Chicago, Terrapinn — Chicago, Illinois, June 24, 2013.

ISACA Chicago Chapter Annual Conference — Chicago, Illinois, June 13, 2013.

Quant-IT — Venice, Italy, March 1, 2013.

HFT Conference 2013, Terrapinn —London, UK, February 13, 2013.

The Trading Show New York, Terrapinn — New York, New York, December 1, 2012.

High Frequency Trading Leaders Forum 2012 — Chicago, Illinois,
October 9, 2012.

Inside Market Data Chicago — Chicago, Illinois, September 24, 2012.

The Trading Show Chicago 2012, Terrapinn — Chicago, Illinois, June 24, 2012.

HFT Trade Show, In Vantage Group — London, UK, February 28, 2012.

Quant-IT 2012 — Venice, Italy, February 10, 2012.

The Trading Show London — London, UK, February 1, 2012.

Forum High-Frequency Trading 2011 — Chicago, Illinois, June 17, 2011.

Quantitative Asset & Risk Management Workshop 2011 — Milan, Italy,
February 8, 2011.

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High Frequency Trading World 2010 — New York, New York,
December 6, 2010.

Quant Congress Europe — London, UK, November 9, 2010.

High Frequency Trading World Europe 2010 — London, UK, November 8, 2010.

Inside Market Data 2010 Chicago — Chicago, Illinois, September 11, 2010.

High-Frequency Trading Leaders Forum 2010 — New York, New York,
May 27, 2010.

FMA Annual Conference — Reno, Nevada, October 21 – 24, 2009.

21st Annual Academy of Entrepreneurial Finance Conference — Chicago, Illinois,
September 23, 2009.

20th Annual Academy of Entrepreneurial Finance Conference — Las Vegas, Nevada,
September 24-26, 2008.

4th World Congress for Software Quality — Bethesda, Maryland,
September 15-18, 2008.

Solutions for Algorithmic Traders at the CME — Chicago, Illinois,
August 6, 2008.

Microsoft's Advancements in Quantitative Finance Conference — Chicago, Illinois,
April 30, 2008.

Microsoft's Advancements in Quantitative Finance Conference — New York, New
York, December 12, 2007.

INFORMS Annual Meeting — Seattle, Washington, November 4-7, 2007.

Automated Trading 2007 — London, UK, October 11, 2007.

American Statistical Association/Joint Statistical Meeting — Salt Lake City, Utah, July
30-31, 2007.

EuSprig 2007 conference — London, England, July 11-13, 2007.

EuSprig 2006 conference — Cambridge, England, July 5-7, 2006.

FIA Futures and Options Expo — Chicago, Illinois, November, 2000.

F. PROFESSIONAL ACTIVITIES

Quoted in business media outlets including: Bloomberg TV, Newsweek, Forbes,
BusinessWeek.com, and Barron's.

ANDREW KUMIEGA

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Member of ISACA

2013-Present

Certified Internal System Auditor

Certified in Risk and Information Systems Control,

Certified in Governance of Enterprise IT,

Certified Information Security Manager,

Member of Professional Training Team

Member of Internal Audit Association

2013-Present

Member of Information Systems Security Association

2013-Present

Member of the American Society of Quality

1998-Present

Certified Quality Engineer

Certified Quality Auditor

Certified Software Quality Engineer

Board Member of Vertex Analytics

2010-2013

Member of X9 Working Group for AT9000

2012-2014

H. CONTRIBUTIONS TO THE PROFESSION

Founding Member of the AT9000 committee. The creation of the committee was completed by attending multiple industry meetings to solicit support from the industry trade groups and regulators. AT9000 was a proposed ISO 9000 standard for electronic finance.

Member of the ISACA.ORG Chicago Chapter Education Committee. The Committee charter is to teach review classes for the CISA and CRISC to expand the knowledge of the membership.

I. FUNDED PROPOSALS

Department of Energy (Nuclear Energy), "Determination of Microstructure and Chemical State Changes in Ion-Irradiated Fuels and Structural Components with a High Kinetic Energy Electron Detector," June 2012- July 2013, CO-PI

J. PROFESSIONAL HISTORY

Academic Work History:

ANDREW KUMIEGA

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August 1996 to Present - Illinois Institute of Technology

Spearheaded the use of industry software in the instruction of engineering and finance courses to provide the students with both knowledge and industry skills. Created unique classes in multiple disciplines including Operations Management, Finance, Information Decision Sciences, and Engineering.

- Worked on the team that designed the course work flow for the Masters in Financial Markets as the program was being created in the late 1990's.
- Developed a class based on the body of knowledge contained in the "Certified in Risk and Information Systems Control" (CRISC) certification from ISACA.ORG. This class is a hybrid class that combines traditional operational risk knowledge and contemporary IT Risk. This unique class has been well received by the students that are majoring in Supply Chain and Manufacturing Technology.
- Developed a derivative fixed income class that focused on convertible bonds.
- Developed an introductory fixed income class.
- Developed a financial times series class focusing on forecasting equity prices utilizing forecasted balance sheet data.
- Developed an interactive class to teach the application of Design of Experiments to reduce the variation of a manufacturing process. Class included a weekly lab where students conducted experiments on various real life processes and significantly reduced the variation of the process.
- Designed an interactive class for financial modeling. The class is based on Visual Basic and Excel. The class covers portfolio optimization, options using binomial and trinomial methods and stock selection techniques utilizing Fama and French methodology, ARCH and GARCH forecasting methods.
- Developed a software project management and software quality course for the development of financial applications. The structure of the class was based on the MCSD and CSQE national tests.
- Developed a course for the Manufacturing Technology Department that focused on computers for manufacturing. This class focused on the creation of optimization models for standard manufacturing problems such as supply chain forecasting, product optimization, and transportation routing problems. This class mixed theory and applications so that the students were able to apply the concepts from class to their full time jobs.
- Developed an advanced project management class. The class focused on managing projects using M.S. Project and managing the accounting side of projects using Excel.
- Lectured a wide range of classes including: statistics, bond mathematics, time series analysis, simulation modeling, equity modeling, investments, structured products, engineering economics, optimization, and data analysis while working full time.

Industry Work History:

Asset Management (2013—Present)

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Director of Financial Engineering

An expert in financial forecasting models and data analytics that rejuvenated the quantitative research and programming team.

- Created and implemented an IT/Research Governance structure that streamlined the development process to ensure the completion of new asset management tools and forecasting models with monthly releases versus semi-annual releases.
- Prototyped, designed, and supervised the creation of 10 new multi-factor forecasting models to over/under weight sectors/factors to increase the funds' Sortino Ratio. These factor models are custom tuned per clustering group as described by GICS codes and K-Means groupings based on fundamental factors.
- Created and part of the management team for a quantitative tilted value mutual fund. The current tools include factor modeling, portfolio optimization utilizing non-linear optimization, and customized attribution/risk monitoring tools.
- Developed and implemented a Bayesian based event signal for company releases of quarterly data. This multi-factor signal is considerably more predictive and stable versus the traditional standardized unexpected earnings indicator.
- Spearheaded, created the pricing algorithms, and project managed the upgrade of the risk calculations for convertible bonds to be implemented in Cuda and utilizing GPUs. This effort was the first implementation of distributed processing of mathematically intensive algorithms at the firm. This design change allowed to computational intense algorithms to run effectively in real-time.

Infinium Capital Management (2007—2013)

Director of Quality

A senior quality and IT risk leader that has spoken at many industry level conferences in regards to IT risk and IT governance in high frequency trading and algorithm design.

- Created new processes and departments to support a wide range of IT initiatives to reduce the firm's IT risk. This was completed through the implementation of a new enterprise wide IT governance structure, IT risk management framework, and the creation of a software quality assurance team.
- Valued mentor that developed a highly successful intern and mentorship program which promoted students into intermediate positions in research, development, trading, data mining, and networking. Implemented process-oriented employee development and built strong relationships in order to propel the quality philosophy across the entire organization.
- Verified risk calculations for a real-time risk software application. Created test plans and user documentation for this risk application that was utilized by risk managers and traders to control risk in real-time. The test plans were created for a complex system operating structure that included Windows, Linux, GPU and FPGA clustered calculation farms.
- Responsible for approving all code, patches, and system changes to ensure the changes were consistent with our IT risk policies. Sole and final approver of the release of new

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prediction algorithms and execution algorithms. Regularly banned the use of new code due to non-acceptance of the risk of the code regardless of the six digit plus profit potential of the code. The banned code was required to be reworked, documented, and tested again to the firm's standards prior to gaining my approval.

- Greatly reduced the daily software release process from over 20 minutes to less than 3 minutes through business process reengineering and the implementation of a scalable release management system, supporting a global network of over 1,500 servers.
- Directed quality assurance and project management teams to support the needs of development and product management for the development of tools for all asset classes (futures, options, stock, and event trading) at the firm; championed and coded a customized JIRA based project management system from concept to completion in only 3 months. This world class quality system managed the work flow for more than 4,000 annual change requests while automatically documenting quality testing for each change request.

Spectrum Global Fund Administrator (2006—2007)

Director of Software Quality and Quantitative Risk Modeling

Trusted leader, mentor, and natural motivator with exceptional leadership experience in creating two new teams and processes in a startup environment.

- Built a quality assurance team from a team of two to a team of 10 employees both on and offshore. The team was responsible for software quality and project management teams with direct responsibility of accounting calculations, report calculations, user interface, and system stability and scalability for quarterly software release cycles. The majority of these workers were hired as interns and were trained into successful full-time employees. Most of the workers progressed in IT development, IT network management, or fund accounting positions.
- Led the design and management of a custom coding and daily data processing system for the development of daily risk reports for more than 30 hedge funds utilizing various external risk management platforms for all asset classes.
- Created an IT governance framework that greatly reduced release cycles from quarterly to bi-weekly; system was designed to conform with ISO/IEC 90003:2004 and enabled a successful SAS 70 audit opinion for the IT department in only one month.
- Met with external customers to create a customized onboarding project plan that included unique data analytics and risk metrics for a wide set of OTC derivative products. Managed the PM team to ensure new customers were “on boarded” successfully within agreed upon time lines.

TD Waterhouse-Securities Options (2002—2006)

DIRECTOR OF QUANTITATIVE RESEARCH

Strategist with deep IT acumen who built high performance teams, designed algorithms for automated financial investment decisions, and standardized solutions while managing successful large-scale and aggressive technical projects.

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- Spearheaded the development of the TD Options weekly report sent to customers and featured in *Barron's*, *Wall Street Journal*, and *Financial Times*—covered topics about the behavior of implied volatility through the use of custom data and graphs.
- Designed, coded and managed the daily implied volatility surfaces for all US listed equities and indexes. These surfaces were parameterized which allowed linkage between products and pricing of OTC derivatives.
- Calculated basic correlation and Ledoit correlations for implied volatility of a basket of stock; prototyped in Matlab and implemented in C/C++/C# utilizing innovative means for corporate gain.
- Led research efforts during the development of a semi-automated market making system for equity options; new system provided automatic hedging and risk management of individual stock options against index options and futures.
- Conceptualized, designed, programmed, and tested a Multifactor algorithm for option portfolio construction to maximize strategies for gamma scalping, overwriting, and volatility dispersion.
- Managed the research process for the creation of a semi-automated market making system for equity options. This system allowed for automatic hedging and risk management of individual stock options against index options and futures.
- Streamlined projects through the implementation of a project management system—greatly improved project timelines and delivery.

TFM Investment Group (2001—2002)

DIRECTOR OF FINANCIAL ENGINEERING

Thought leader that created a structure to shift a floor based option market maker to an electronic market making firm.

- Supervised 2 senior quantitative analysts and 1 junior analyst.
- Implemented a project management system that resulted in the following multiple projects started and completed:
 - Implied volatility versus HLOC volatility graphs for multiple companies using QAI Data and proprietary data cleansing routines. The routines were required to remove bad option prices.
 - Narrow based index volatility dispersion trade utilizing the implied volatility levels as selection criteria.
- Co-developed basic pricing engines in Matlab and C++ for the main trading platform using standard algorithms such as Binomial N+1 and the trinomial tree with basic control variants.
- Mapped and started the development of a long/short system based on price movement, earnings and relative volatility using normalized QAI option data.
- Designed and managed a semi-automated tool to manage the hedging of ETF's and ETF option deltas due to being the lead market maker (LMM) in these products.

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Market Liquidity Networks (2000—2001)

HEAD OF FINANCIAL ENGINEERING / FOUNDING PARTNER

Partnered in the foundation and development of a new company from the initial concept to a working company in three locations.

- Supervised 3 senior programmers, 8 junior programmers and 1 quantitative analyst to build custom software tools to manage option portfolios.
- Developed the office infrastructure for the initial network and risk management systems.
- Designed and prototyped the following systems:
 - A proprietary system to alert the market makers of arbitrage opportunities. Programmed the system in VB6.0 using DDE and MicroHedge. Software worked daily at the PCX for 1 year.
 - A proprietary system to rank normalized implied/historical volatility values to allow for more profitable market making of options via cross hedging of option risk within stock sectors.
- Spearheaded the modification and implementation of third party auto-quotes for LMM's at the PCX. The main reason for pushing the system was to customize our auto-quote using game theory.

Calamos Asset Management (1996—2000)

VICE PRESIDENT OF QUANTITATIVE RESEARCH

Provided outstanding leadership to programmers and junior analysts; streamlined procedures and established direction to ensure the completion of quarterly goals.

- Supervised 5 programmers and 1 junior analyst to insure completion of quarterly goals.
- Developed database programs for statistical analysis (ANOVA, DOE, Regression, ARIMA, etc.) of financial data to re-tune the domestic stock algorithm. The retuning included changing factor weights in the model and the inclusion of new factors. Due to the proprietary calculations and the preference of the company most of the analysis was done through custom programmed applications in FoxPro (VFP) and SQL2000.
- Implemented a project management system for research. This system allowed for a 95% + completion rate of quarterly quantitative software projects for over 3 years.
- Analyzed and restructured financial models for stock selections, redesigned the data structures for more efficient calculations, and created programs to outperform benchmarking tools, utilizing superior technical knowledge and financial understanding to improve performance. Provided outstanding leadership to programmers and junior analysts, streamlined procedures and established direction to ensure the completion of quarterly goals.
- Increased assets under management with the design and introduction of new fund strategies. The strategies utilized unique statistical tools for financial data (ANOVA, DOE, Regression, SPC, etc.
-) which lead to unique financial models. Custom programmed all algorithms utilizing VB6, FoxPro (VFP) and SQL2000.

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- Prototyped, designed, and supervised portfolio performance attribution analysis on 4000+ wrap accounts and multi-factor stock selection algorithms for both domestic and foreign strategies, serving as the basis of all stock selection. Programmed in VB6 and SQL2000.
- Developed and implemented a convertible bond valuation software system.
- Developed a unique corporate credit rating system that was utilized to review a corporation's credit rating.
- Development of proprietary credit rating system based on EVA.

Burgess-Norton Mfg. (1993 — 1996)

Automation/Ergonomic Engineer

Senior engineer who led multiple teams to solve complex manufacturing problems in ergonomics, quality and factory automation.

- Team facilitator for Ford 8D quality teams that were tasked with continuous improvement of plant processes.
- Created and managed the plants ergonomics team. Team consisted of hourly workers, engineers and executive management. Team investigated and proposed solutions to remove root causes of all lost time incidents in a plant of 400 workers. Team's projects regularly exceeded the required ROI for capital improvement projects.
- Implemented the automation of non-destructive testing for real time quality monitoring.
- Performed machine capability studies using Design of Experiments and SPC charting.
- Justification and project management of capital projects. Projects normally involved leading a work group of 4 to 6 workers (2 builders, 1 electrician, 2 operators) and a budget of 4,000,000 +.
- Managed and programmed CNC machines for multiple new product launches.

Thomas Conveyor and Equipment, Co. (1986 —1993)

Application Engineer

An application engineer that successfully developed a sales territory by engineering unique automation solutions that solved customers' problems while providing exceptional ROI for the project

- Engineered complete conveyor systems including custom equipment, electrical and pneumatic controls. Pricing of the equipment and installation costs of the project through the use of competitive bids.
- Complete project management of complex automation systems.
- Design of the accepted system utilizing Auto-CAD. Design of machine logic using PLC and ladder logic.

ANDREW KUMIEGA

AKumiega@iit.edu

- Coordinated customer run off testing of the system at vendors shop.
- Supervised installation of equipment utilizing contracted electricians and millwrights.
- Experience in supervising projects in food, dairy, contract packaging, paper, electronics, pharmaceutical, refineries and multiple other industries.
- Created one of the first laboratory automation systems based on bar codes in the United States for Rush Hospital.
- Built the sales territory from zero existing accounts to over 3 million a year in sales.

Universal Metal Hose, Co. (1981 — 1986)

Welder/Pipe Fitter.

- Welded flexible metal hoses.
- Worked 30 hrs. per week while attending college full time.
- Paid 100% of college education.