



TM

STAC[®] Summit

November 4, 2014

Doors open: 8:30am

Meeting starts: 9:00am

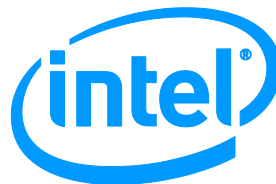
Illinois Institute of Technology

Auditorium

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Chicago, IL 60661

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**IIT Stuart School
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AGENDA

IIT Mini-Symposium on Algo Trading Management

The Center for Financial Markets at the IIT Stuart School of Business conducts research into important aspects of high-frequency trading by combining technical and quantitative expertise with foundational concepts of modern business. In this second mini-symposium, IIT researchers will present three new studies of interest to quants, technologists, and managers in the financial markets as well as other researchers.

- *"What Makes for an Ethical High Frequency Trading Strategy?"*, by Ben Van Vliet, Assistant Professor, IIT. In the new regulatory environment, certain high frequency trading strategies may be illegal, but that does not mean they are unethical. An ethical trading strategy is one that promotes the societal interest in free markets that are transparent, efficient, and reliable. This talk will present criteria for determining which high frequency trading strategies promote this goal, including meeting obligations of safety to external market participants, a complete exploration of risk inherent in the strategy, and a prohibition against preventing market access. The arguments hinge on an analysis of the deception of algorithmic strategies and conclude that regulations that differentiate traders based upon categorizations of intents in a competitive arena must be unethical. [\[slides\]](#)
- *"High Frequency Cancel Clusters and Market Behavior"*, by Rick Cooper, Assistant Professor, IIT. The purpose of this study is to determine whether high frequency trading dynamics systematically affect the market in a way that disadvantages low frequency traders. Specifically, the recent book *Flash Traders* presents a case that high frequency trades "front run" low frequency trades causing degradation in execution quality. We analyze this question using the NASDAQ itch data for the entire S&P500 universe for an entire year. This data is nanosecond time stamped and collected by a co-located server with an atomic clocked synced timing chip on the machine. Specifically we document the existence of "cancel clusters", document the results of such clusters, and categorize the types and frequency of events that come immediately following such clusters. [\[slides\]](#)
- *"Is There Predictable Skill Among Commodity Traders?"* by Marat Molyboga, Chief Risk Officer, Efficient Capital Management LLC. The Fama-French and Carhart papers made famous three- and four- factor models that explain equity returns. (A working paper from Fama purports that a fifth factor is now available to better explain that market.) However, a similar comprehensive analysis in the commodity markets does not exist in the literature. We pool the known literature and modify the Carhart study to use a five-factor model of commodity fund returns. We find this model works well on our sample of managers and that managers do have persistent out-performance characteristics. [\[slides\]](#)

Coffee Break

STAC update on STAC-A2 (risk computation) [\[slides\]](#)

- Peter Lankford, Founder & Director, STAC

The STAC-A2 Benchmark suite is the industry standard for testing technology stacks used for compute-intensive analytic workloads involved in pricing and risk management. Peter will provide a brief update on the latest learnings and the latest activities of the STAC-A2 Working Group.

Key decisions when going parallel [\[slides\]](#)

- Michael Voss, Software Architect, Intel

By now, most financial firms know that the way to harness Moore's Law (which continues, by the way) is to parallelize their applications. But that's easier said than done. Huge amounts of existing code are still serial or not parallelized well. What are some of the strategies a firm can take to deciding which applications and libraries to parallelize first? Once the decision is made, how can a developer decide what approach to take to parallelize a given piece of code, such as the programming model, compiler, and tools? Michael will propose answers to these questions.

STAC update on tick analytics and backtesting [\[slides\]](#)

- *Peter Lankford, Founder & Director, STAC*

Peter will summarize the latest activities in areas relating to backtesting and tick data.

Innovation Roundup

"Capitalizing on Effective Data Mining: Methods for Big Data and Complex Problems" [slides]	<i>Rod Cope, CTO, Rogue Wave Software, Inc</i>
"1 Billion transactions/second on a \$25k cluster" [slides]	<i>Nikita Ivanov, Founder and CTO, GridGain Systems</i>
"Can SQL handle tick data with speed?" [slides]	<i>Chris Mureen, COO, McObject</i>

Networking Luncheon

You Snooze you Lose: Lessons from Real-Time Bidding [\[slides\]](#)

- *Sukanta Ganguly, Aerospike*

Much like financial trading, the online ad market is now dominated by automated decision making. Every time a user opens a web page with ad space, computers from multiple firms engage in an enormous amount of communication, analysis, and bidding behind the scene to decide which company's ad will make it onto the page—all within milliseconds. Similar to many processes in a bank, realtime bidding platforms require a data architecture that can handle terabytes of data and hundreds of thousands of transactions per second. How do the leading platforms achieve this and turn insights into action? Sukanta will describe his experiences building and operating modern ad-tech platforms, combining an in-memory NoSQL database for predictable high performance with Hadoop based analytics platforms in the back, an architecture that is rapidly becoming the gold standard in the Age of Context.

STAC update on low-latency research [\[slides\]](#)

- *Peter Lankford, Founder & Director, STAC*

Peter will review the latest STAC activities related to low-latency workloads.

Innovation Roundup

"Reducing latency by continuously predicting session performance in real time" [slides]	<i>Tony Pettipiece, Global Head of Sales and Marketing, Cape City Command</i>
"Beyond the first layer" [slides]	<i>Dave Snowdon, Founder, co-CTO, Metamako</i>
"Four Trends Transforming the Market Data Landscape" [slides]	<i>Lee Fisher, VP, Marketing, Redline Trading Solutions</i>
"Introducing the ExaLINK Fusion: a new ultra-low-latency switch and application platform" [slides]	<i>Dr Matthew Chapman, CTO, Exablaze</i>
"Introducing NovaTick, NovaSparks Third Generation Pure FPGA Feedhandler" [slides]	<i>Olivier Baetz, COO, NovaSparks</i>
"Low Latency Tick-to-Trade System with new support for CME SBE MDP3" [slides]	<i>John Lockwood, CEO, Algo-Logic</i>

Coffee Break

Rethinking network capture

- *Matthew Knight, Marketing Director Financial Services, Solarflare* [\[slides\]](#)
- *Glenn Wright, Systems Architect, DataDirect Networks* [\[slides\]](#)

Financial firms today rely on network captures for a range of crucial analytics. But capturing data remains a fairly expensive and rigid process, handled by specialty cards and appliances. How well does this model fit today's customer needs? Would a more open-systems approach be superior--or just more complicated? If a firm takes over the responsibility to engineer its own capture solutions, how should it handle some of the major considerations (e.g., constructing a storage architecture with sufficient capacity and the ability to capture during traffic bursts, what form to capture data in, how to accommodate realtime analytic needs, how to satisfy compliance requirements, etc.)?

Point of View: The current and future role of low-latency wireless [\[slides\]](#)

- *Stephane Tyc, Co-founder, McKay Brothers*

The use of microwave and millimeter-wave wireless technology for low-latency communication between trading centers burst onto the scene about two years ago. Since then, many firms have adopted some sort of wireless links. How has the technology and wireless market changed since then? Is wireless just a fringe product for the extreme players or has it gone mainstream? What will the technology and provider landscape look like in another one to two years, and what will that mean for adoption patterns? Stephane will provide a point of view on these questions from the leader of one of the firms at the forefront of the wireless trend.

Networking Reception

Speaker Biographies



Rick Cooper, Illinois Institute of Technology. Ricky “Rick” Cooper is Assistant Professor of Finance at IIT Stuart School of Business. Throughout his academic career, Dr. Cooper has taught all aspects of financial theory, investments, and corporate finance at Wayne State University, Harvard University, and Vanderbilt University. Dr. Cooper began his professional career with State Street Global Advisors in Boston, MA, where he quickly rose from Active International Portfolio Manager, to co-founder of the Enhanced Index Group, to co-founder and Associate Director of the Advanced Research Center. He worked as Senior Partner and Director of Analytics for Harris Investment Management. He currently serves as a research consultant and Director of Risk Management for Xambala, Inc.'s proprietary high frequency trading systems. Dr. Cooper's research has been published in The Journal of Futures Markets, The Financial Analyst's

Journal, The Journal of Financial Economics, and several other books and journals. Dr. Cooper has been a speaker at numerous conferences, and has been quoted in both the Wall Street Journal and Crain's Chicago Business.



Sukanta Ganguly, Aerospike.



Peter Lankford, Founder & Director, Securities Technology Analysis Center. Peter leads STAC[®], which provides hands-on technology research and testing tools to the finance industry and facilitates the STAC Benchmark Council[™], a group of leading financial institutions and vendors that engages in technical dialog and specifies standard ways to assess technologies used in finance. Prior to STAC, Peter was SVP of the \$240M market data technology business at Reuters. Prior to Reuters, Peter held management positions at Citibank, First Chicago Corp., and operating-system maker IGC. Peter has an MBA, Masters in International Relations, and Bachelors in Chemistry from the University of Chicago.



Marat Molyboga, Illinois Institute of Technology. Marat is the Chief Risk Officer and Director of Research at Efficient Capital Management, LLC, and a member of the Executive Committee. He is also an Adjunct Professor of Finance at the IIT Stuart School of Business. Marat began his career at Efficient in 2001 as a Research Analyst. From 2002, he consulted for Petra Intraday Trading Systems as the Senior Researcher and served as its president from 2004. He left Petra in 2006 and joined the Research Department at Efficient as a Senior Research Analyst. His expertise is in CTA performance evaluation and portfolio construction. Marat is also an expert in portfolio risk management and serves as the Chief Risk Officer for the firm, while also overseeing the work of the Research Team. Marat is a Financial Risk Manager designee (FRM), a Chartered Financial Analyst (CFA), and holds a Series 3 license. He graduated with high honors from Moscow State University in 2001 with a Masters in Financial Mathematics. He also graduated with honors from the University of Chicago's Booth School of Business in 2013 with an MBA in Finance, Economics and Strategic Management.



Matthew Knight, Marketing Director Financial Services, Solarflare. Before joining Solarflare in January 2014, Matthew was the Company President of Accensus, a company building an ultra-low-latency hybrid software/FPGA trading platform. Prior to that he worked at DRW Trading in Chicago in the role of Head of Labs focused on ultra-low-latency technology and before that he worked at STAC Research in its early days following almost a decade at Reuters.



Stephane Tyc, Co-Founder, McKay Brothers. Stéphane received a PhD in Physics from Harvard University. He continued his fundamental research at Thales Group. He earned multiple patents on power transistors for microwave radios and superconducting logic devices. Stephane enjoyed a 17-year career at BNP Paribas. He directed Equity Derivative Quantitative R&D, Global Business Management, and Post Trade Services. His responsibilities included low latency arbitrage research, high performance computing, and market risk. He also served on the DTCC Warehouse Trust Company Board of Directors for two years.



Ben Van Vliet, Assistant Professor of Finance, IIT. Ben is an Assistant Professor at the Illinois Institute of Technology's Stuart School of Business (IIT), where he also serves as the Associate Director of the M.S. Finance program. At IIT he teaches courses in quantitative finance, C++ and .NET programming, and automated trading system design and development. He serves also as series editor of the Financial Markets Technology series for Elsevier/Academic Press. Ben consults extensively in the financial markets industry, primarily on topics related to the mathematics, technology and management of trading systems. Ben is the author of three books on trading/investment: Quality Money Management with Andrew Kumiega, Modeling Financial Markets with Robert Hendry, Building Automated Trading Systems. He has also published several articles in the finance and technology, and presented at several academic and professional conferences.



Michael Voss, Software Architect, Intel. Michael Voss is a Software Architect in the Software and Services Group at Intel. He has been a member of the Intel® Threading Building Blocks team since 2006 and is the architect of the flow graph API. Prior to joining Intel in 2006, he was an assistant professor in the Edward S. Rogers Sr. Department of Electrical and Computer Engineering at the University of Toronto. He received his Ph.D. in Electrical Engineering from Purdue University in 2001. His interests include shared memory parallel programming, compilers and runtime optimization.



Glenn Wright, Systems Architect, DataDirect Networks (DDN). Glenn has 20+ years of technical experience in the High Performance Computing industry, working on both server, networking and storage elements of extreme performance solutions. Glenn has been with DataDirect Networks™ (DDN) for the last 3 years, during which time he has helped clients across HPC industries solve the new "big data" high performance/low latency problems. Glenn has recently focused on technical infrastructure solutions in high capacity analytics for environments with the need for extreme levels of I/O between the storage and server components of the solution. Prior to DDN, Glenn was a senior architect at QLogic (Infiniband group) and also held many varied/international roles at Sun Microsystems.
