WHPCF'15 Agenda

8:30-9:00	**Keynote: Brian Peterson (Partner, DV Trading) on HPC Patterns in Finance** *See below for abstract and speaker biography.*
9:00-9:20	Solving the Optimal Trading Trajectory Problem Using a Quantum Annealer *Gili Rosenberg, Poya Haghnegahdar, Phil Goddard, Peter Carr, Kesheng Wu and Marcos Lopez de Prado*
9:20-9:40	Implementing Deep Neural Networks for Financial Market Prediction on the Intel Xeon Phi *Matthew Dixon, Diego Klabjan and Jin Hoon Bang*
9:40-10	GPU Option Pricing *Justin Wan, Simon Suo, Ruiming Zhu and Ryan Attridge*
10-10:30	**Break with refreshments**
10:30-10:50	Fulfilling Solvency II Regulations using High Performance Computing *Mark Tucker and Mark Bull*
10:50-11:10	Potential Future Exposure, Modelling and Accelerating on GPU and FPGA *Grzegorz Kozikowski, Grigorios Papamanousakis and Jinzhe Yang*
11:10-11:30	Optimization Strategies for Portable Code for Monte Carlo-Based Value-at-Risk Systems *Javier Alejandro Varela, Claus Kestel, Christian De Schryver, Norbert Wehn, Sascha Desmettre and Ralf Korn*
11:30-11:50	Parallelism-centric optimization and performance study of a finance aggregation engine on modern NUMA systems *Guojing Cong, Sophia Wen, James Sedgewick and Louis Ly*
11:50-12:10	STAC-A2™ Benchmark on POWER8 *Bishop Brock, Frank Liu and Karthick Rajamani*
12:10-2pm	**Group discussion over lunch at restaurant (TBC)**

Biography of Brian Peterson

Brian Peterson is author or co-author of over ten packages for using R in Finance. Brian is a partner and head of quantitative trading for DV Trading in Chicago, and has previously held similar roles at other Chicago proprietary trading firms and a quantitative global macro hedge fund. He also publishes papers on risk and portfolio construction in multiple peer-reviewed journals.

Keynote Abstract

Use of high performance computing in finance may be described using a set of common patterns drawn from computer science and finance. Drawing from both literature and personal experience, we will discuss these different pat- terns and offer them along with suggestions to improve the applicability of research in this field. Different use cases re- quire different engineering solutions. It is useful to consider where the bottlenecks are in the process, or how the process is bound.

Models for input, output, data, and compute bound processes will be considered, as well as the more complex processes that find bounds in multiple categories. These pat- terns will be discussed in the context of examples from market data, pricing, market surveillance, portfolio optimization, strategy backtesting, pricing, and risk. Understandings of the engineering constraints of these patterns can be used to improve research in this area, and can inform real applications to raise system capability and throughput.