Doctoral project and industrial scholarship at the University of Paris-Est

REAL-TIME AND OFF-LINE PARALLEL COMPUTING FOR TRADING AND RISK MANAGEMENT

EXQIM	LACL
Exclusive Quantitative Investment Management http://www.exqim.com/	Laboratoire d'Algorithmique Complexité et Logique, Université de Paris-Est lacl.univ-paris12.fr

EXQIM: An Exclusively Quantitative Process-Driven Asset Management.
EXQIM is an asset management company that manages its own money. As EXQIM's name suggests, it relies exclusively on quantitative, fully automated processes to manage its investments. These quantitative processes are based on mathematical models ranging from simple chartist rules to complex order-book models. No external human intervention will be possible after the deployment of the investment processes. On the other hand, for instance, models will be required to invalidate themselves if market parameters run out of their range assumptions for the processes. These investment processes will range across several world markets and hundreds of different assets, subject to such criteria as liquidity. In its first stage of development, EXQIM will focus on intraday processes. All positions are closed by the end of each trading session. However, in later stages, longer periods of investment will be used in new strategies.

These quantitative processes will be developed by a team with an excellent track record in various areas of mathematics and computer science. Recruitment is geared towards people with an entrepreneur personality and an exceptional profile in their area of expertise. EXQIM looks for every opportunity to collaborate with French and European top-tier Universities and Engineering Schools. This will allow it to be on the cutting edge of research and technology and will make us one of the very best quantitative teams on the market.

LACL: the University of Paris-12's Computer Science laboratory.
LACL is a research and doctoral training unit recognized and funded by the French Ministry of Research. The laboratory specializes in software verification, computer security and applied logics. One LACL team conducts research on parallel computing and hosts PC clusters for its experiments and for the benefit of its industrial partners. This work has been rewarded by an EADS doctoral thesis prize, national and regional grants. Their techniques for scalable performance are applied to numerical simulation, machine learning, databases, automatic software verification and protocol security. LACL is member of the SYSTEM@TIC cluster federating Paris-region leaders in software R&D.

To support EXQIM's objectives we wish to engage in an industrial research project along the following axes:
1**) Parallel processing for trading algorithms**: to design, verify, implement and tests programming tools for the modular programming of EXQIM's real-time algorithms with predictable performance. Asynchronous extensions for processing stock-exchange orders should also be designed.
2) **Off-line processing for risk management**: parallel- or grid-computing for global risk control and on-line detection/processing of events such as stop-loss & stop-gain, option barriers etc.

We seek a qualified Masters-level C.Sc / C.Eng / Applied Math. graduate to conduct this project under joint supervision, leading to a doctoral degree of the new Paris-Est University cluster.

CONTRACT: The student-employee will be hired according to the clauses of a CIFRE contract (http://dr.education.fr/Alloc_doc/CIFRE.html) and register with the doctoral school in charge of LACL thesis students. Contract and doctoral studies duration of 3 years as soon as possible from October 2009. Necessary resources will be provided by EXQIM-LACL and results published in international conferences or journals.

Applications: Applicants should send by September 10, 2009 a detailed CV, Master's-level degree and any other relevant documents. Knowledge of French not required but language courses can be made available. Training or experience in parallel algorithms, parallel languages or functional programming will be an asset.

Jean-Guillaume Grebet
Co-founder and mathematician, EXQIM
jgg@exqim.com

Gaétan Hains
Professor of Computer Science, LACL
gaetan@hains.org www.hains.org