

Jin Hyuk Jung

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OBJECTIVE

A position focused on the collaborative implementation and operation of (semi-)autonomous quantitative trading systems for various investment vehicles.

SUMMARY

A numerical analyst and computer scientist experienced in system trading, signal processing, large scale optimization, support vector machines, parallel matrix computation on graphics processing units, and stochastic programming. A vigorously self-motivated worker with excellent analytical, collaborative and creative skills. A fast learner with strong programming skills.

EDUCATION

Ph.D. in Computer Science, University of Maryland, College Park, MD, USA **Sep. 2003-Jan. 2008**
Awarded Information Technology Scholarship by Ministry of Information and Communication, South Korea
GPA: 4.0/4.0

M.S. in Computer Science, University of Maryland, College Park, MD, USA **Sep. 2003-May 2006**
GPA: 4.0/4.0

B.Eng. in Computer Engineering, Seoul National University, Seoul, Korea **Mar. 1996-Feb. 2000**
Awarded *cum laude* with the highest grade in the department
Awarded scholarships for 8 semesters
GPA: 3.85/4.3 (3.73/4.0)

Seoul Science High School, Seoul, Korea **Mar. 1993-Feb. 1996**

EXPERIENCE

Quant Trader, Financial Eng. Dept., Korea Investment and Securities, Seoul, Korea **Oct. 2009-Present**
Initiated the systematic trading in the proprietary trading team.
Developed and operated various quantitative trading strategies.

Associate quant, Financial Eng. Dept., Korea Investment and Securities, Seoul, Korea **Oct. 2008-Oct. 2009**
Developed hedge trading aids such as pricing models and systems for exotic options.
Initiated the development of a trading system for exotic options that displays greeks in realtime, in which orders can be placed.

Developed an OTC volatility management system which automatically extracts implied volatilities from daily quotes from OTC brokers. The system was then extended to manage historical volatilities and correlations.
Initiated the use of a central subversion repository for sharing and collaborative development of pricing engines and trading aids.

Participated as a part-time member and as a department representative in the task force team for developing a next generation integrated trading system that handles the whole set of investment vehicles the company trades.

Senior quant researcher, Research Center, Daishin Securities, Seoul, Korea **Apr. 2008-Oct.2008**
Researched quantitative trading strategies using statistical machine learning and time series analysis.
Published a research paper that suggests an autonomous investment strategy that uses an SVM. The strategy achieved 21.76% capital gain per a year after subtracting the transaction cost.

Research assistant, University of Maryland, College Park, MD, USA **Jan. 2006-Feb.2008**
Under Dr. Dianne P. O'Leary
Initiated using a GPU in solving linear programming problems and successfully implemented an interior point method.
Applied the constraint reduction for linear programs to solving convex quadratic programs and training support vector machines. Proposed shrinking the set of constraints adaptively.

Summer intern, LG Electronics, Seoul, Korea**Jun. 2004-Aug. 2004**

Ported an OGG/Vorbis codec library written in C and developed for PC to ARM920T/LN2410 testing board. OGG/Vorbis is a freely available non-patented audio codec under GNU general public license. LG Electronics wanted to implement the codec in their mobile phones and digital music players.

Teaching assistant, University of Maryland, College Park, MD, USA**Sep. 2003-Dec. 2005**

Served as teaching assistant for Scientific Computing I, a graduate course, and others. Made lecture notes. Figures from my notes are included in the book entitled "Scientific Computing with Case Studies" written by Dr. O'Leary.

KNOWLEDGE AND PROGRAMMING SKILL SETS

Background: Optimization including (quasi-)newton methods, Black-Scholes, Graphics processing units, Support vector machines, Stochastic programming, Monte Carlo method, Partial differential equation, Finite element method, Finite difference method, Neural network

Operating Systems: MS Windows, Linux, Mac OS X

Processors: x86, GeForce Series

Programming Languages: C, C++, C#, Java, Perl, MATLAB, SQL, VBA

Programming Skills: Object oriented analysis and design. Design patterns.

Databases: SQL Server, Oracle, MySQL, SQLite

Application Programming Interfaces: OpenGL, BLAS, LAPACK, .NET Framework, VSTO, Boost

Productivity Tools: MS Office, iWork

Language Skills: Effective oral and written communication skills. Fluent in English and Korean.

PUBLICATIONS

1. Ju-Hwan Park and Jin Hyuk Jung. Predicting KOSPI using a Support Vector Machine. Research Report. Daishin Securities, Co. Ltd.. Sep. 2008.
2. Jin Hyuk Jung. Adaptive Constraint Reduction for Convex Quadratic Programming and Training Support Vector Machines. Ph.D. Dissertation. Jan. 2008.
3. Jin Hyuk Jung, Dianne P. O'Leary and André L. Tits, "Adaptive Constraint Reduction for Training Support Vector Machines," *Electronic Transactions on Numerical Analysis*, vol. 31, pp. 156-177, 2008.
<http://etna.mcs.kent.edu/vol.31.2008/pp156-177.dir/pp156-177.pdf>
4. Jin Hyuk Jung, Dianne P. O'Leary and André L. Tits. Adaptive Constraint Reduction for Convex Quadratic Programming. *Submitted for publication*. Jan 2008.
http://www.optimization-online.org/DB_FILE/2008/01/1886.pdf
5. Jin Hyuk Jung and Dianne P. O'Leary, "Implementing an Interior Point Method for Linear Programs on a CPU-GPU system," *Electronic Transactions on Numerical Analysis*, vol. 28, pp. 174-189, 2007-2008.
<http://etna.mcs.kent.edu/vol.28.2007-2008/pp174-189.dir/pp174-189.pdf>
6. Jin Hyuk Jung and Dianne P. O'Leary. Exploiting Structure of Symmetric or Triangular Matrices on a GPU. *Proceedings of Workshop on General Purpose Processing on Graphics Processing Units*. Oct. 2007.
http://www.salbang.com/cs.umd.edu/research/cholgpu/Exploiting_Structure.pdf
7. Jin Hyuk Jung and Dianne P. O'Leary. Cholesky Decomposition and Linear Programming on a GPU. *Proceedings of Workshop on Edge Computing Using New Commodity Architectures (EDGE)*. Chapel Hill, NC, May 2006. http://www.salbang.com/cs.umd.edu/research/cholgpu/cholgpu_edge.pdf
8. Jin Hyuk Jung. Cholesky Decomposition and Linear Programming on a GPU. *Scholarly paper*. Department of Computer Science, University of Maryland. Feb. 2006.
<http://www.cs.umd.edu/Grad/scholarlypapers/papers/jjung.pdf>

PRESENTATIONS

1. Jin Hyuk Jung. Exploiting Structures of Symmetric or Triangular Matrices on a GPU. Workshop on General Purpose Processing on Graphics Processing Units. Boston, MA. October 2007.
2. Jin Hyuk Jung. A Constraint Reduced IPM for Convex Quadratic Programming with Application to SVM Training. INFORMS Annual Meeting. Pittsburgh, PA. November 2006.

REFERENCES

Available on request