Friday, April 23, 2010
12:00 p.m. – 1:00 p.m.   Welcome Lunch and Registration, Carl A. Fields Center All Purpose Room
• Opening Remarks: H. Vincent Poor *77, Dean, School of Engineering and Applied Science

Panel Discussions and Keynote Lecture, Carl
1:00 p.m. – 2:00 p.m.   “Lessons from the Financial Crisis”
Finance Panel Closed to Media
Moderator: John Mulvey, Professor of Operations Research & Financial Engineering
Panelists:
• Kemal Askar ’98, Managing Director, Head of USD Swaps, Government and Agency Bond Trading, JP Morgan
• John Drzik ’83, President, Oliver Wyman
• Hafize G. Erkan *06, Vice President in Investment Banking, Goldman Sachs
• Frank J. Fabozzi, Professor in the Practice of Finance and Becton Fellow, Yale University
• Adam J. Berger *95, Principal, Princeton Focused Investments

2:00 p.m. – 2:30 p.m.   Coffee Break

2:30 p.m. – 3:30 p.m.   “Energy and Climate Change”
Moderator: René Carmona, Paul Wythes ’55 Professor of Engineering and Finance
Panelists:
• Rick G. Andlinger ’80, President, Andlinger & Company
• Peter Cartwright ’52, Founder and Managing Partner, Avalon EcoPower
• David W. Crane ’81, President and CEO, NRG Energy
• Harrison Hong, John Scully ’66 Professor of Economics and Finance, Princeton University

3:30 p.m. – 4:00 p.m.   Coffee Break

4:00 p.m. – 5:00 p.m.   Keynote Lecture
John Drzik ’83, President, Oliver Wyman

5:00 p.m. – 7:00 p.m.   ORFE Open House and Reception, Sherrerd Hall

7:00 p.m. – 9:00 p.m.   Alumni Banquet, Friend Center Convocation Room

Saturday, April 24, 2010
9:00 a.m. – 11:00 a.m.  Continental Breakfast, Sherrerd Hall Atrium

10th Anniversary Celebration
Operations Research & Financial Engineering
http://www.orfe.princeton.edu/
Hafize Gaye Erkan *06

Hafize G. Erkan is a Vice President in Investment Banking, overseeing the Financial Institution Strategies team that focuses primarily on providing client-oriented quantitative modeling and risk management solutions for financial institutions. Prior to joining Goldman Sachs in 2005, she earned a PhD in Operations Research and Financial Engineering from Princeton University, after graduating with a BSc degree from Bogazici University, Turkey as the valedictorian in 2001. During her PhD candidacy, she received a grant from the National Science Foundation for her thesis and multiple Excellence in Teaching awards. In 2003, she was selected as a Sigma Xi Honor Society member.

Frank J. Fabozzi

Frank J. Fabozzi is a Professor in the Practice of Finance at Yale School of Management and editor of the Journal of Portfolio Management. He is an affiliated professor at the University of Karlsruhe (Germany) Institut für Statistik, Ökonometrie und Mathematische Finanzwirtschaft (Institute of Statistics, Econometrics and Mathematical Finance). Prior to joining the Yale faculty he was a visiting professor of finance at MIT’s Sloan School of Management. Frank currently serves on the Advisory Council for the Department of Operations Research & Financial Engineering at Princeton University. He is a consultant to several financial institutions and is on the board of directors of the BlackRock complex of funds.

Energy and Climate Change

2:30 – 3:30 p.m.

Merrick G. Andlinger ’80

Merrick G. Andlinger is President of Andlinger & Company, Inc., a private investment and management company founded in 1976. Mr. Andlinger has served on numerous corporate boards (public and private) in the U.S. and Europe in the manufacturing, technology, cleantech and service sectors. Andlinger’s cleantech portfolio includes, carbon credit project development, water purification, thin film solar cell equipment, and electric grid infrastructure. Prior to joining Andlinger & Company in 1999, he served as President and CEO of Pure Energy Corporation, a bio-based fuel and chemical company. Prior to this, he spent thirteen years as an investment banker, specializing in energy and natural resources. He was co-head of Smith Barney’s Global Energy and Power Group. Mr. Andlinger received his AB from Princeton University in 1980 and MBA from the Graduate School of Business at Stanford University in 1984.
David W. Crane ’81

David Crane is President and CEO of NRG Energy, a leading wholesale power generation company with facilities capable of generating nearly 24,000 megawatts of electricity—enough to power approximately 20 million homes. NRG’s retail business, Reliant Energy, serves 1.6 million residential, business, commercial and industrial customers in Texas. Crane is a leading voice on climate change and the power sector’s role in reducing greenhouse gases from the next wave of new power generation while meeting growing energy needs. He is outspoken on the need to advance climate legislation and support clean energy resources and technologies critical to our transition to a low carbon society.

Peter Cartwright ’52

Pete has been active in environmental affairs and is currently a Director of the Sierra Club Foundation. He is currently Founder and Managing Partner of Avalon EcoPower, a new company dedicated to developing, owning and operating economically-sound environmentally-friendly power plants in the United States. Pete founded Calpine Corporation, and as CEO, grew the company to become one of the Nation’s largest independent power producers focusing on natural gas and geothermal power plants. He has spent over 50 years in the power industry in the United States and internationally starting at Princeton University’s thermonuclear program—Project Matterhorn. He went on to General Electric Company building nuclear power plants in India, Japan, Taiwan and Mexico and managing technology programs in Europe. Pete graduated from Princeton in 1952 with a B. S. in Geological Engineering. He received an M. S. in Civil Engineering from Columbia University in 1953. He served in the U. S. Navy Civil Engineer Corps.

Harrison Hong

Harrison is the John Scully ’66 Professor of Economics and Finance at Princeton University, where he teaches courses in finance in the undergraduate, master and PhD programs. Before joining Princeton in 2002, he was on the faculty of the Graduate School of Business at Stanford University. He received his B.A. in Economics and Statistics with highest distinction from the University of California at Berkeley in 1992 and his Ph.D. in Economics from M.I.T. in 1997. His research has covered such topics as: behavioral finance and stock market efficiency; asset pricing and trading under market imperfections; incentives and biases in decision making; organizational form and performance; and social interaction and markets. He is on the editorial boards of the Journal of Finance and the Journal of Financial Intermediation. He is a Director of the American Finance Association and a Research Associate at the National Bureau of Economic Research. In 2009, he was awarded the American Finance Association’s Fischer Black Prize, given biennially to the person under 40 who has contributed the most to the theory and practice of finance.
Welcome from Acting Chair, Professor Ronnie Sircar

This has been a great year to be acting chair of the ORFE department at Princeton. We are flourishing like never before and in several different ways: we have made exciting new appointments and promotions; we have settled into a terrific new building, Sherrerd Hall; our faculty’s research continues to attract international attention and recognition; we had a record yield of 68% graduate PhD acceptances for next academic year; and this academic year our undergraduate numbers and enrollment remain high (55 Seniors, 62 Juniors and 49 Sophomores). The tougher economic conditions present many challenges to the department and the university, but thanks to an excellent department manager and staff, we are surviving the period of budget cuts with minimal reduction, while maintaining the quality we all expect.

This year, we welcomed Professor Ramon van Handel as an Assistant Professor. Ramon had previously been with us as a Postdoctoral Associate in the Research Training Group (RTG) in Stochastic Analysis and Applications, following a PhD in Physics from Caltech. He is an expert in Stochastic Analysis and Filtering Theory, and is already widely recognized for having resolved a notorious gap in the 40-year old proof of Kunita’s ergodic theorem. Professor Patrick Cheridito was promoted to Associate Professor with tenure -- he adds enormously to our strengths and reputation in Financial Mathematics and Stochastics. Just this month the Trustees approved the promotion of Professor Alex d’Aspremont to Associate Professor with tenure -- he is a valued asset to the department between the areas of optimization and modern statistics. We are delighted to add four of our distinguished Princeton colleagues as Associated Faculty in ORFE: Professor Markus Brunnermeier (Economics), Professor Robert E. Schapire (Computer Science), Professor John Storey (Molecular Biology) and Professor Wei Xiong (Economics).

A number of postdocs joined the department in 2009:

• Dr. Selin Damla Ahipasaooglu is working with Professor Alexandre d’Aspremont. She received her Ph.D. from Cornell, and is a specialist in Convex Optimization, especially first-order methods for large scale problems.
• Dr. Michael Coulon joins the RTG after his PhD at Oxford; he is a specialist in energy and commodities markets and will teach ORF 335 (Introduction to Financial Mathematics) in the Spring.
• Dr. Marco Cuturi is working with Professor Alexandre d’Aspremont; he is a specialist in machine learning and is teaching ORF 522 (Linear Optimization) currently.
• Dr. Shaojun Guo is visiting Professor Jianqing Fan and the Statistical Laboratory as a visiting postdoctoral research associate from the Chinese Academy of Sciences, Beijing. His research interests are in survival analysis, analysis of longitudinal and functional data; non- and semi-parametric modeling; measurement error models; and high-dimensional data analysis.
• Dr. Xu Han is working with Professor Jianqing Fan. He recently received his PhD in Statistics from the Wharton School, University of Pennsylvania. His research interests are in statistical decision theory and casual inference, and he is teaching ORF 505 (Time-Series & Regression) currently.
• Dr. Ning Hao is working with Professor Jianqing Fan. He recently received his PhD in Mathematics from Stony Brook University. His research interests include: high dimensional statistical learning, empirical process, algebraic statistics and geometry.
• Dr. Stephan Sturm joins the RTG after his PhD at TU Berlin. His research interests include Stochastic Analysis and Mathematical Finance. He is teaching ORF515 (Spring 2010), Asset Pricing II: Stochastic Calculus and Advanced Derivatives.

Finally, we bid a fond farewell to Professor Savas Dayanik and his family. After seven years with ORFE, Savas returned to his native Turkey to become a faculty member at Bilkent University. We wish him well.
In the following pages you will read about some of the notable achievements of our faculty and students.

**Undergraduate News**

The class of 2010 has 55 students. The Class of 2012 confirms once again that ORFE is a highly desirable undergraduate major. This past spring, 54 sophomores signed up to major in the department (16 women and 38 men). Currently the total undergraduate enrollment is 165.

The ORFE Class of 2009 had 56 students. Four graduated with Highest Honors; ten High Honors and eleven Honors. The majority (24) took positions in the financial services industry. Ten students headed directly to graduate school. Three chose teaching while four became management consultants. Three students had several choices and have not yet decided what to do, while twelve students’ plans were not known (no responses).

Certificates were awarded in: Applications of Computing (15); Applied and Computational Mathematics (4); Engineering and Management Systems (33); Environmental Studies (1); Finance (25); Chinese (1); Japanese (1).

**General and Departmental Prizes 2009**

The **Frank S. Castellana** Prize for “Outstanding scholarship and academic achievement”, was awarded to Diana Negoescu. Her Senior Thesis was entitled “Optimal Learning for Drug Design in Ewing’s Sarcoma”. Her advisor was Professor W. Powell.

The **Kenneth H. Condit** Prize for “Leadership through academic achievement and community service” was awarded to Jonathan Lange. His Senior Thesis, “An Analysis of the Effects of News on Stock Returns Using Support Vector Machines”. He was advised by Professor A. d'Aspremont.

The **Ahmet S. Cakmak** Prize for “Innovative research and an exceptional senior thesis” was awarded to Scott Chacon and Yao Wang. Scott’s thesis, “Analysis, Characterization, and Visualization of Freeway Traffic Data and the Effect of Driver Behaviors on Traffic Flows” was advised by Professor A. Kornhauser. Yao’s thesis was entitled “Lost Decade 1999 - 2008 The Case for Multi-Strategy Investment Management”, and was advised by Professor J. Mulvey.

The **Sigma Xi** Book Award was awarded to Gordon Scharf for an outstanding senior thesis that exemplifies the standards of Sigma Xi, the National Scientific Research Society. His thesis, “Grade Rank: A Mathematical approach to Contextualizing Grades”, was advised by Professor R. Vanderbei.

Prizes and awards from outside the department were awarded as follows. Diana Negoescu won the Calvin Dodd McCracken Senior Thesis Award. In the Athletic Prizes category there were three recipients. David Palms ’11, received The Coach’s Trophy; Matthew B. Grabowski ’11 received both The Coach’s Trophy and the Edward J. Donovan Award for Baseball; Pawel R. Buczak ’11 received The B. Franklin Bunn Trophy in Basketball; Christopher Vasich ’09 received The Morgan Award in Track; Martin Everin ’09 received both The Gifford Trophy and The Treide Trophy in Wrestling.

**PORS**

The Princeton Operations Research Society (PORS) continues to provide vital services to the undergraduate program. Some of this year’s activities include helping underclassmen with course selection, representing the ORFE department at the Princeton Majors Fair, and supporting seniors as they begin to write their thesis. To date, PORS has held two meetings. Its first meeting was held on October 17th. New members received a description of the organization and the events it has arranged in the past along with potential events for the year. On November 20th, PORS hosted an information session for the consulting firm Accenture. PORS is also continuing its tradition of excellent study breaks.
PORS Continued

Graduate News
In September, the department welcomed one new MSE student and ten new Ph.D. students. The students are from Bulgaria, Chile, China, Italy, France, Turkey, and the US. Four of them obtained their undergraduate degrees from colleges and universities in the United States -- Washington, Princeton, University of Pennsylvania and Cornell; two from China -- Peking University, Tsinghua University.; one from France -- Ecole Polytechnique; one from Turkey --Bilkent University; one from Italy -- Padua University and one from Chile -- University of Chile.

In 2009, nine ORFE students successfully defended their Ph.D. thesis:

- Yue Niu’s thesis “Validation Tests And Genewise Variance Estimation For Microarray Data” was advised by Professor Fan. She took an academic position in the department of Mathematics at The University of Arizona.
- Kazutoshi Yamazaki’s thesis “Essays on Sequential Analysis: Multi-Armed Bandit with Availability Constraints and Sequential Change Detection and Identification” was advised by Professors Dayanik and Powell. He took an academic position at Osaka University.
- Ronny Luss’s thesis “Mathematical Programming for Statistical Learning with Applications in Biology and Finance” was advised by Professor d’Aspremont. He took an academic position in the department of Statistics and Operations Research at Tel Aviv University.
- Peter Frazier’s thesis “Knowledge-Gradient Methods for Statistical Learning” was advised by Professor Powell. He took an academic position in the department of Operations Research and Information Engineering at Cornell University.
- Mitja Stadje’s thesis “Dynamic Risk Measures and Backward Stochastic Differential Equations: From Discrete to Continuous Time” was advised by Professor Cheridito. He took an academic position at Eurandom at the Technical University of Eindhoven, to be followed by a position in the department of Mathematics at the University of Michigan.
- Jingjin Zhang’s thesis “Asset Allocation with Gross Exposure Constraints and Factor Selection” was advised by Professor Fan. He took a position at Barclays Capital.
- Woo Chang Kim's thesis “Re-engineering Financial Planning for Institutional Investors” was advised by Professor Mulvey. He took an academic position in the Industrial and Systems Engineering Department at the Korean Advanced Institute of Science and Technology.
- Sergey Nadtochiy’s thesis “Market Models for European Options: Dynamic Local Volatility and Tangent Levy Models” was advised by Professor Carmona. He took an academic position at the Oxford-Man Institute of Quantitative Finance, University of Oxford.
- Mehmet Bilgili’s thesis “Clustering Techniques and Multi-Regime Stochastic Optimization with Applications in Finance” was advised by Professor Mulvey. He took a position at Verition Fund Management.
- Wentao Yan received an MSE degree. He was advised by Professor Fan.
There were three very successful conferences organized by ORFE faculty at Princeton this past year. The 5th Oxford-Princeton workshop on Financial Mathematics & Stochastic Analysis was held in March 2009 in Sherrerd Hall. The Oxford-Princeton Workshops are held approximately every eighteen months as an opportunity for leading groups of researchers in, primarily, mathematical and computational finance from Oxford University and Princeton University to collaborate and interact. The series is organized by the Oxford-Man Institute, the Oxford Mathematical and Computational Finance Group, the Department of Operations Research and Financial Engineering and the Bendheim Center for Finance. The Second workshop was organized by Professor Jianqing Fan: the 2nd Princeton Humboldt Finance Workshop. The workshop was held in October 2009, in Sherrerd Hall. This program focused on Perceiving and Measuring Financial Risk: Credit, Energy and Illiquidity. Sponsors included Operations Research and Financial Engineering, Princeton University, Bendheim Center for Finance, Princeton University, Collaborative Research Center 649, Humboldt University, Wirtschaftswissenschaftliche Gesellschaft, Humboldt University and Quantitative Products Laboratory, Deutsche Bank AG & Humboldt University and Technical University, Berlin. Speakers included Markus Brunnermeier, Rene Carmona, Gokhan Cebiroglu, Patrick Cheridito, Wolfgang Haerdle, Gregor Heyne, Ulrich Horst, Jianqing Fan, Peter Kratz, Michael Kupper, Brenda Lopez, Santiago Moreno, Ostap Okhrin, Lei Qi, Birgit Rudloff, Yacine Ait-Sahalia, Melanie Schienle, Ronnie Sircar, Song Song, Vladimir Spokoiny, Wei Xiong, Dacheng Xiu.

Prof. William A. Massey organized the 15th Conference for African American Researchers in the Mathematical Sciences (CAARMS15). The conference was held from June 23-26, 2009 in Houston, TX. It was hosted by Rice University and events were held on the Rice University campus. Sponsors for this event were Rice University, Princeton University, National Science Foundation, National Security Agency, NSF Training Grant for Stochastic Analysis and Applications, NSF Engineering Research Center for Mid-Infrared Technologies for Health and the Environment (MIRTHE), Rice-Houston Alliances for Graduate Education and the Professoriate (AGEP) and Morgan Stanley. The CAARMS meetings provide a forum where minority researchers in the mathematical sciences can meet each other and find out about their work across different mathematical fields. This forum also serves as a place to meet and mentor minority graduate students as well as encourage them to obtain doctoral degrees.
Congratulations

Sherrerd Hall was dedicated on April 4, 2009, in honor of the late John J.F. (Jay) Sherrerd ’52, one of Princeton’s most active and devoted alumni.

Professors Erhan ÇINLAR, Andreas HAMEL, Philippe RIGOLLET, and Andrzej RUSZCZYNSKI on the Commendations for Outstanding Teaching during the Spring 2009 semester. Also making the list were ORFE Graduate Students Jared KLYMAN and Lei Qi, as outstanding AIs for ORF 335 and ORF 504 respectively.

Professor Rene CARMONA, Paul Wythes ’55 Professor of Engineering and Finance was selected as a Fellow of the Society for Industrial and Applied Mathematics.

Castle Laboratory for receiving the 2009 Daniel H. Wagner Prize. Dr. Hugo SIMAO and Professor Warren POWELL were recipients of the 2009 Wagner Prize awarded by INFORMS for applications which make a methodological contribution.

Professor Alex d’ASPREMONT received the National Science Foundation CAREER Award. The CAREER Award is the most prestigious award from the NSF in support of junior faculty who exemplify the role of teacher-scholars through outstanding research, excellent education and the integration of education and research within the context of the mission of their organizations.

Professor Jianqing FAN, Frederick I. Moore Class of 1918 Professor in Finance, is a 2009 recipient of the Guggenheim Fellowship Award. His project title is “Feature selection and statistical learning in ultrahigh dimensional space”.

Professor Alain KORNHAUSER gave the keynote address at the 34th Trenton Computer Festival and Hamfest, the longest continuously running personal computer show in the world. He spoke on “The Car of Tomorrow”, a truly autonomous highway vehicle that can drive itself.

Professor William MASSEY was honored for his efforts to support underrepresented minorities in the fields of science and technology. He received Princeton University’s MLK Day Journey Award, which recognizes efforts to continue the journey to achieve Martin Luther King Jr.’s vision for America.

Professor Ramon van HANDEL was awarded the 2009 SIAG/CST Best SICON Paper Prize at the SIAM Conference on Control and Its Applications (CT09).


Professor Rene CARMONA goes green in ORF 405: Regression & Applied Time Series, by going paperless.

Diana NEGOESCU ’09 and Peter FRAZIER *09 have received honorable mention in the first ‘Doing Good or Good OR’ competition sponsored by Informs. The competition recognizes students for student groups whose projects are likely to have a significant impact on society through the application on operations research methods. Their project addressed the problem of sequencing the testing of different compounds in the search for drugs to effectively treat Ewing’s Sarcoma.

Ilya RYZHOV was one of six graduate students honored at the annual Association of Princeton Graduate Alumni Teaching Awards in recognition of his outstanding teaching abilities.

Matthew CONNOR ’11 wins $100,000 grant for diabetic iPhone App. Matthew worked with his brother Michael, a 2007 graduate of Washington University in St. Louis, to develop an iPhone application to help diabetics manage their disease. The grant was awarded to expand their initial application into a Web-based tool to help diabetics stay healthy, and make it easier for doctors to monitor diabetic patients and for researchers to study treatments for the disease.

Evans XIANG ’10 was announced as a co-recipient of the university’s George B. Wood Legacy Junior Prize, which is given to a member of the senior class in recognition of exceptional academic achievement during the junior year.
Rene Carmona
Signal and image processing, stochastic processes, financial mathematics, stochastic partial differential equations, time frequency analysis, wavelets, image analysis.

Patrick Cheridito
Security pricing, stochastic processes, stochastic modeling, mathematical finance, risk analysis.

Erhan Cinlar
Stochastic models and queuing theory, renewals, martingales, Markov processes, stochastic differential equations, dynamic point processes, mass transport by stochastic flows, applications to mathematics of insurance and finance, reliability of complex systems, modelling and estimation of natural hazards.

Alex d’Aspremont
Convex optimization with a particular focus on semidefinite programming. Applications in statistics, machine learning and finance.

Jianqing Fan
Financial econometrics, risk management, bioinformatics, Data-analytic modeling, Nonlinear time series, analysis of longitudinal data, model selections, nonparametric inferences, wavelets, survival analysis, generalized linear models, mathematical statistics, computational biology, statistics theory and methods.

Alain Kornhauser

William Massey
Stochastic models and queuing theory, performance and pricing models for telecommunications systems, asymptotic analysis and stochastic bounds for queueing networks, theories of queues with time-varying rates, stochastic networks.
John Mulvey  

Warren Powell  
Approximate dynamic programming and optimal learning, with applications in energy, homeland security, health and complex resource allocation problems.

Philippe Rigollet  
Nonparametric statistics, statistical learning theory, high dimensional statistics, bandit problems, aggregation, stochastic optimization, dimension reduction.

Birgit Rudloff  
Financial management and risk analysis, hedging in incomplete markets, convex and coherent risk measures, convex analysis, mathematical finance, risk-management.

Ronnie Sircar  

Robert Vanderbei  
Optimal design, convex optimization, high-contrast imaging, extra-solar planets, coronagraph design, external occulter design, celestial mechanics, stability of Saturn’s rings, horseshoe orbits, political mapping, image processing.

Ramon van Handel  
Probability theory, applied probability, stochastic analysis, Markov processes, ergodic theory, mathematical statistics, information theory, mathematical finance, nonlinear filtering, stochastic control, mathematical physics.

An Investigation of Factors Affecting Real Estate Price in China

Batteries: Storing Wind

Building a Spot-Price Model for Natural Gas From Supply and Demand Fundamentals

Characterization and Modeling of Shipping Pick-Up and Delivery Operations

Cuba after Castro: Modeling the Transformation from Collectivism to Capitalism

Epidemiology of the H1N1 Pandemic Influenza

Estimating the Risk and Return of Private Equity Investments

Excessively Conservative Attitudes to Financial Instruments and Low-Risk Hedging: A Contextual Model Proposed for the National Budget of Trinidad and Tobago

From Smart Grid Vision to Reality: Agent-Based Modeling of the Smart Grid

Game of Numbers: A Statistical Analysis of Rotisserie Fantasy Baseball

Gray Market: Building a Secondary Market for Private Company Equity

Greening the Grid: Optimal Tax Policy for Wind and Solar Technology

Improving the Efficiency of the Major League Baseball Rule IV Draft: An Application of Machine Learning

Language Processing Techniques for Text Classification with Applications to the Analysis of Financial News Leading to Trading Strategies

Modeling Locational Spreads of Natural Gas Spot Prices: Impact of Pipeline Capacity, Gas Flow, Temperature, & Storage Level

Navigation based Services: Request, Organization, Delivery and Consumption

Network Failure Localization Using Noisy Search Techniques

Optimal Dosing Applied to Glycemic Control for Type 2 Diabetes

Optimal Information Collection and Intervention Strategy for an Infectious Disease Outbreak at Princeton University: A Partially Observable Markov Decision Process

Optimal Levels of Hourly Wind Generation Commitment and Reserve Portfolio Usage

Option-Implied Market Sentiment

Over the Counter Markets

Personal Rapid Transit: Qualitative and Quantitative Tools for Analysis

Powering America: Optimizing Electricity Generation for the United States Until 2030

Real-Time Dynamic Congestion Value Pricing, Express Toll Lane Design and Bus Lane Throughput Improvements for the New York-New Jersey Lincoln Tunnel

Regime Identification in Stock Markets and its Applications in Stochastic Portfolio Optimization

Relative Pricing of Options and Defaultable Bonds under Stochastic Volatility

Returns and Risks of the Chinese stock market - a Discrete State Hidden Markov Model Approach

Simulation and Analysis of an Energy Portfolio Problem Using a Deterministic Linear Program

Sovereign Wealth Funds: Their Performance in Global Financial Markets and its Implications for Regulatory Controls

Stochastic Analysis of Number Games with Jackpots & Sales Forecasting Models for Lottery Operators

Returns and Risks of the Chinese stock market - a Discrete State Hidden Markov Model Approach

Simulation and Analysis of an Energy Portfolio Problem Using a Deterministic Linear Program
‘10 Senior Thesis Titles

- Sovereign Wealth Funds: Their Performance in Global Financial Markets and its Implications for Regulatory Controls
- Stochastic Analysis of Number Games with Jackpots & Sales Forecasting Models for Lottery Operators
- Stochastic Games: The Analysis of Campaign Funds on the 2008 Presidential Race
- The Impact of Emissions Leakage on Greenhouse Gas Regulation
- The Impacts of High-Frequency Trading
- The Non-Default Component: The Influence of Liquidity Factors on Corporate Bond Spreads
- The Promise of Grid Storage: Applications, Regulation, and Revenue-Maximizing Policies for Energy Arbitrage
- The Valuation of Natural Gas Storage: A Knowledge Gradient Approach with Non-Parametric Estimation
- Towards Optimizing a PRT Network
- Transportation Shocks: Analyzing Transportation Networks for Increased Traffic Flow During the Olympic Games
- Updating of Entropy Pooling Approach
- View Confidence Levels Objectively via Model Averaging
- Using Learning Curves to Optimize Government Subsidies for Photovoltaic Technology
- Utility Indifference Pricing Under Prospect Theory
- Utility Pricing of Collateralized Debt Obligations
- Wheeling Paratransit through the 21st Century: Expansion of GPS Technology in Flexible Route Transportation
- Wind and Pumped-Hydro Power Storage: Determining Optimal Commitment Policies with Knowledge Gradient Non-Parametric Estimation

Post Graduate Plans – Class of ’09 and ’10

**Industry**

- AMR Capital Trading
- Bank of America (2)
- Barrington Associates
- Centerview Partners
- Cushman & Wakefield
- G.X. Clarke & Co.
- Intellectual Ventures
- Jefferies & Company
- Microsoft (2)
- Optiver US LLC
- Prudential Financial
- Global Electronic Trading Co.
- UBS Investment Bank

**Analytics Operations Engineering (2)**
- Bank of America Merrill Lynch (4)
- Bates White
- Citigroup
- Dean & Company
- Goldman Sachs (6)
- J.P. Morgan (6)
- Kobre & Kim LLP
- Morgan Stanley (6)
- PAWS – Youth Athletics
- Sophrosyne Capital
- Trillium Trading
- Vicis Capital

**Bain & Company**
- Barclays Capital (3)
- Boston Red Sox OR/Player Dvlpmnt
- Cornerstone Research
- Deutsche Bank (5)
- Hot Potato
- Jane Street Capital (2)
- Mars & Co
- Nomura, London
- Postlethwaite & Netterville
- Spark Management L.P.
- Two Sigma Investments
- Wells Fargo/Wachovia (3)

**Graduate School**
- Cornell University
- Princeton University
- Yale University

**Massachusetts Institute of Technology**
- Stanford University (3)

**NYU, Stern School of Business**
- University of California, Berkeley

**Global Outreach**
- Reach Out 56-81 Fellowship Global Health work in Sierra Leone
Approximate Dynamic Programming for Complex Storage Problems
Accounting For Risk Aversion In The Valuation of Employee Stock Options and Credit Derivatives
Applying Statistical Leaning Theory: Agricultural Commodities and Weather Risks
Asset Allocation with Gross Exposure Constraints and Factor Selection
Clustering Techniques and Multi-Regime Stochastic Optimization with Applications in Finance
Dynamic Risk Measures and Backward Stochastic Differential Equations: From Discrete to Continuous Time
Essays on Sequential Analysis: Multi-Armed Bandit with Availability Constraints and Sequential Change Detection and Identification
High Dimensional Profile Likelihood Inference and Covariance Matrices Estimation
Indifference Valuation of Executive Options (MSE)
Knowledge-Gradient Methods for Statistical Learning
Market Models for European Options: Dynamic Local Volatility and Tangent Levy Models
Mathematical Programming for Statistical Learning with Applications in Biology and Finance
Mitigating Failure Risk in an Aging Electric Power Transmission System
Model-Guided Nonparametric Option Pricing
Re-engineering Financial Planning for Institutional Investors
Relative Entropy Calibration of Point Process Models for Multi-name Credit Derivatives Pricing
Sensor Management (MSE)
Validation Tests And Genwise Variance Estimation For Microarray Data

Industry
Alliance Bernstein
Lehman Brothers
Louis Dreyfus Highbridge Energy
McKinsey Co., Brazil
Merrill Lynch
Bank of China

Academia
Cornell University
Johns Hopkins University
Korean Advanced Institute of Science & Tech.
London School of Economics (2)
Osaka University, Tokyo
University of Oxford
Technical University, Eindhoven
Tel Aviv University
Yale University