By Kathy Quinn Thomas

About 200 alumni, faculty, students and friends of the School of Operations Research and Information Engineering (ORIE) celebrated John A. “Jack” Muckstadt’s retirement Oct. 26 with a Ph.D. reunion and poster session and symposium in Clark Hall and a dinner at the Country Club of Ithaca.

Muckstadt, the Acheson-Laibe Professor of Engineering in ORIE and a Stephen H. Weiss Presidential Fellow, joined the faculty in 1974. Along with his research and teaching responsibilities, he was the School director for nine years; he also established and was the first director of the Cornell Manufacturing Engineering and Productivity Program.

A retired U.S. Air Force officer, Muckstadt was co-director of Cornell’s Institute for Disease and Disaster Preparedness until his Cornell retirement. In addition to his teaching and research, Muckstadt has consulted with dozens of corporations about their supply chain management and other operations.

“He’s shoes are too big to fill,” said ORIE Director Adrian Lewis during opening remarks. “I can see his fingerprints on everything we have accomplished here.”

Muckstadt helped build ORIE’s reputation by nurturing the best and the brightest faculty talent for the School, Lewis said. He also helped put the School on sound financial footing. “He is very canny, very farsighted,” Lewis said.

For more than three decades, Muckstadt has championed experiential learning, acting as adviser on countless student projects. “Jack has that rare talent of making ideas work,” Lewis said.

Muckstadt has also been a mentor and role model for
new faculty, said ORIE professor David Shmoys. “I was hired by Jack,” Shmoys said. “He set the bar, the expectations of what a good faculty member should do.”

Shmoys is co-chair of the Academic Planning Committee for the Cornell NYC Tech campus. “Of course I turned to Jack for advice. He was a sage every step of the way,” he said.

At the poster session, where 14 Ph.D. students discussed their projects, subjects included algorithms that can determine optimal ambulance travel time, find prime pricing points and detect covert members of terrorist networks. While students made their cases, Muckstadt kept them supplied with hot coffee.

The symposium featured many ORIE alumni as presenters. “This had to be the easiest symposium in the world to organize,” said ORIE Professor Peter Jackson. “Everyone we contacted was eager to come back to Cornell to attend this event for Jack.”

Cornell Financial Engineering Manhattan Graduates 47 Students at December 2012 Ceremony

On December 13, 2012, 47 students graduated from the CFEM program. Joining the students at the events were family members, friends and co-workers in addition to faculty members Victoria Averbukh, Adrian Lewis, Kathryn Caggiano, and Sasha Stoikov, and CFEM staffers Judy Francis and Jasper Beards.
Creativity often comes packaged in paint, fabric, film, or music. But at the Ph.D. Poster session in Clark Hall on Friday, October 26, creativity came in the guise of puzzles solved by algorithms.

“I like problems that are easy to state and hard to solve,” says Ph.D. student Jake Feldman. Feldman’s project, An EM-based Approach for Estimating the Parameters of a MMNL Choice Model, looks at how retailers can use historical sales data to discern future buying patterns. “The problem is, each purchase does not fully reflect the preference of the customer,” Feldman says. Other factors, such as the absence of a preferred product, can influence the customer’s purchase. His research addresses how to factor in those intangibles to more accurately predict future sales.

The perimeter of the room was lined with students and their posters. A constant buzz of voices filled the room as visitors asked questions and students replied. Some of the students looked at their research as the beginning of an academic career, while others hoped to take their projects to market. But they all brought their expertise to bear on a subject they were passionate about. All were equally enthusiastic about what they had done and their works’ potential for society’s improvement.

Ph.D. student Brad Westgate created a method for ambulance drivers to more efficiently estimate the quickest path to pick up patients and get them to the hospital with his project, Ambulance Travel Time Estimation Using Bayesian Data Augmentation. Meanwhile, Ph.D. student Jing Xie’s project, Optimization via Simulation with Pairwise Sampling and Correlated Prior Beliefs, is research that complements Westgate’s by looking at how to predict optimal staffing levels at hospitals. Both projects, when implemented, could save time, money, and lives.

Interested in ecology, Gwen Spencer, a post-doctoral fellow at Dartmouth College, considered ways to combat aggressive flora and fauna that can take over an area with her project, Robust Cuts over Time: Combatting the Spread of Invasive Species with Unreliable Biological Control. “This all comes from my love of ecology,” she says.

The students were clearly proud of their work, smiling and shaking hands with the guests. The hour allotted to the poster session passed quickly, morphing into a boisterous lunch where students, alumni, advisers, and guests took time for deeper conversation.

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Participating students (with advisors) and their topics included:

- James Davis (Huseyin Topaloglu), Assortment Optimization under the Nested Logit Model
- Jake Feldman (Huseyin Topaloglu), An EM-based Approach for Estimating the Parameters of a MMNL Choice Model
- Mathew McLean (David Ruppert), Functional Generalized Additive Models
- Alice Paul (David Williamson), Detecting Covert Members of Terrorist Networks
- Zachary Rayfield (Huseyin Topaloglu), Pricing Multiple Substitutable Products under the Nested Logit Model with Price Bounds
- Gwen Spencer (David Shmoys), Postdoctoral Fellow with the Nuekom Institute for Computational Science at Dartmouth College, Robust Cuts over Time: Combatting the Spread of Invasive Species with Unreliable Biological Control
- Rolf Waebber (Peter Frazier/Shane Henderson), Probabilistic Bisection Search for Stochastic Root-Finding
- Jialei Wang (Peter Frazier/Nagesh Gavirneni), Parallel Machine Learning Algorithm in Global Optimization
- Jing Xie (Peter Frazier), Optimization via Simulation with Pairwise Sampling and Correlated Prior Beliefs
- ShanShan Zhang (Adrian Lewis), Partial Smoothness, Tilt Stability, and Generalized Hessians
By Mark Eisner

Festivities during Jack Muckstadt’s fall retirement weekend included two scholarly components — a Ph.D. Reunion Symposium with talks by some of Muckstadt’s many successful Ph.D. students and colleagues, and a poster session at which current Ph.D. students presented their research. Symposium speakers included former Muckstadt students Howard Singer, Ph.D. ’79; Andrew Loerch, Ph.D. ’90; Ganesh Janakiraman, Ph.D. ’03; and Retsef Levi, Ph.D. ’05, as well as his colleagues Robin Roundy, Nathaniel Hupert and Peter Jackson. Presentations spanned a broad array of applications of operations research. Several built on Muckstadt’s supply chain management ideas.

Singer is Chief Strategic Technologist at Warner Music Group. Loerch is Associate Professor in the Department of Systems Engineering and Operations Research at George Mason University. Janakiraman is Associate Professor of Operations Management at the University of Texas at Dallas. Levi is J. Spencer Standish (1945) Professor of Management at the Sloan School of Management at MIT.

Roundy, for many years an ORIE colleague of Muckstadt, is now Professor of Mathematics at Brigham Young University. Hupert is Associate Professor of Public Health and Medicine at Weill Cornell Medical College (WCMC) and Muckstadt’s collaborator in building models for public health response logistics. Jackson, Professor in ORIE, has co-authored many papers with Muckstadt and is co-developer of their popular Design of Manufacturing Systems course.

Rock music and Operations Research (OR)

OR talks rarely start by quoting Hunter S. Thompson, the 1970’s counter-culture Gonzo journalist. But then, it is unusual for an OR Ph.D. to become a major music company executive, which Howie Singer is. He described his career path from that of a typical OR analyst at Bell Laboratories, with work reading like a list of ORIE course titles, to a division of AT&T that was a pioneer in using compression and encryption technology to distribute music over the Internet. That brought him into an industry Thompson calls “a cruel and shallow money trench… where …good men die like dogs. There’s also a negative side.”

Alumni, Colleagues Gather for ORIE Symposium

Howard Singer, Ph.D. ’79 talks about his career path from an OR analyst to the Chief Strategic Technologist at Warner Music Group.

For Singer, the music business has shown its positive side, as he used his OR and business background to understand and influence technology trends in e-commerce, digital rights management, music consumption habits, social media, peer-to-peer technologies, and copyright law. Singer concluded by illustrating that the stunning evolution of music media — from LP records and tape cassettes to compact disks and digital downloads — has been accompanied by a sharp rise and fall in music revenues despite a dramatic rise in the amount of music that is distributed.

Past, present and future of military OR

Both Muckstadt and his student Loerch are retired colonels, Muckstadt from the Air Force and Loerch from the Army. In his talk, Loerch traced OR to its beginnings as a “scientific method of providing executive departments with a quantitative basis for decisions regarding the operations under their control,” in the words of a seminal 1950 OR text by Morse and Kimball that began as a classified military report.

Loerch pointed out that the early military use of OR had no established methodology or standard models, but “sought to understand underlying phenomenology through observation and data collection.” He described military OR contributions ranging across determining the optimal size for military ocean convoys in World War II; racial integration of the Army in the Korean
Andy Loerch, Ph.D. ‘90 described how OR plays an important role in today’s military.

War; control of disease in the Vietnam War (where analysts supported commanders in the field); the use of simulation analysis in the Cold War; and real-time OR support in the Persian Gulf. Loerch said insurgency and “the forgotten lessons of Vietnam” are among the current areas where OR is being applied to military problems, noting that the military now is facing both recurring analytical problems and “new and different problems that don’t fit a standard paradigm,” so that it is once again necessary to “collect data and seek understanding before anything else.”

Low cost regular and high-cost emergency suppliers

Former Muckstadt student Janakiraman discussed an inventory problem, but not before thanking Muckstadt for his kindness, understanding, openness, dedication to teaching, encouragement, and foresight. He confessed to nearly abandoning his Ph.D. when the math became overwhelming, but “warm mentoring” by Muckstadt and Emeritus Professor Uma Prabhu got him to stay.

Janakiraman discussed the inventory problem of a firm that has two possible sources for a particular good: one a regular supplier that offers a lower price but requiring a longer lead time and the other a “surge” supplier that is able to deliver more quickly but at a higher price. The challenge is to balance purchase cost against lead times in the face of the firm experiencing possible surges in demand.

In practice, balance is often attempted by procuring a fixed quantity from the regular supplier and “tailoring” the amount ordered from the surge supplier to best meet surges.

Muckstadt & Severance: Long-time friends, business partners

Dennis G. Severance met Jack Muckstadt when Muckstadt arrived in Ithaca in 1974 to begin his career at Cornell. “I was a faculty member and in charge of meeting the new recruits at the airport,” Severance says. “I had just joined the faculty the year before. We became good friends.”

Severance is Professor Emeritus of Computer and Information Systems at the University of Michigan’s Stephen M. Ross School of Business. Before joining the University of Michigan in 1978, Severance was an associate professor and principal investigator in the Management Information Systems Research Center at the University of Minnesota. Prior to that, he was an assistant professor in ORIE at Cornell.

Although Severance remained at Cornell for only two years after Muckstadt arrived, the two and their families became fast friends. Despite their geographic distance, Severance and Muckstadt have shared a longstanding consulting career. “When I was at Michigan, Jack referred me to a company that needed my help. Then I referred him,” Severance says. “Now we have thirty years together in the business.”

Severance’s specialty is in information systems and management. Muckstadt’s expertise, of course, is in operations research. The duo has solved issues for a number of clients over the years, with course materials and programming they designed together.

“We have changed companies, changed their cultures, and changed people,” Severance says. “And whatever we’ve learned from that, we have brought back to our classrooms.”

About Muckstadt, Severance says: “He is a Boy Scout in that he is highly ethical, reaches out to others to help them, donates to causes and is willing to give of his time. He is unique.”

Severance and Muckstadt remain friends. Muckstadt has a second home in Ann Arbor, Mich., where Severance lives, and they enjoy rooting for the University of Michigan’s Wolverines football team.

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in demand. Janakiraman and colleagues investigated how effective this “Tailored Base-Surge (TBS)” policy is, when compared with the best that can be theoretically achieved. They discovered that when surges in demand are rare but large, relative to variability in the base demand, the best TBS policy is nearly optimal. They also showed that the performance of TBS policies increases as the regular supplier’s lead time increases.

**Achieving savings in the distribution of print magazines and newspapers**

Levi described a collaboration among faculty and students at Technion and MIT, and analysts at Yedioth Group, the largest media company in Israel.

With print magazines and newspapers under threat around the world, distribution in Israel is still significant. But it suffers from the classic OR news vendor problem – how many copies of an issue to stock when running out of copies means losing sales but unsold copies are perishable, hence worthless? Yedioth distributes periodicals through a network of retailers via sales agents. They send out copies at the beginning of each periodical’s distribution cycle (e.g., once a week) and accept returns of unsold copies at the end of the cycle for a full refund, a costly process especially when retailers order more than enough copies.

Levi and his collaborators found value in providing an additional delivery during the week from pooled stock, with the size of the initial delivery based on a two-stage stochastic linear programming model and the size of the additional delivery based on information collected by the sales agent, who uses a decision support system that incorporates the model. When a pilot study showed a 1% increase in sales, 42% fewer stock outs and 38% fewer returns despite a reduction of 9% in the number of copies distributed, the approach was implemented by Yedioth on a large scale.

**A colleague returns**

Roundy, who worked closely with Muckstadt during the 24 years when they were colleagues at Cornell, discussed a supply chain approach to which he, Muckstadt and ORIE Professor Emeritus William Maxwell have contributed. The problem, known as EOQ, was formulated in the early days of OR, when analysts focused on determining how much of a product a retailer should order, and at what time intervals. Although EOQ is easy to solve for simple situations, it is notoriously difficult for multilevel (“multiechelon”) and multistage supply chain networks.

Roundy’s early work on this problem, which won the prestigious Lanchester Prize, showed that if reorders are permitted only at time intervals that are power-of-two multiples of some fixed base planning period (such as a week) it becomes easier to compute solutions while sacrificing only about 2% of opti-
mality on average. Roundy described how Muckstadt and Maxwell used two powerful intuitive notions to compute solutions to the resulting model: “divide and conquer” and an analogy employing weighted balloons floating in an atmosphere whose density diminishes steeply with altitude. Although Roundy’s “magical powers of 2” approach was developed a quarter century ago, he described important multilevel and multistage supply chain questions about it that are yet to be resolved.

Sometimes the egg comes before the chicken
Jackson discussed one of Muckstadt’s long time inventory policy principles: “don’t duplicate safety stocks at every level in a distribution system.” Drawing an analogy with a model (the chicken) and inventory operating policy (the egg), he noted that policy is often derived from modeling results, but in their research Muckstadt’s policy principle preceded the development of the model that supports it.

They looked at the relationship between inventory investment and the rate at which products are sold from that inventory. Because of “the curse of variety,” assets can be deployed disproportionately in products that contribute relatively little to sales. One reason is that applying fill rate formulas too simplistically results in holding safety stock in a way that violates Muckstadt’s principle. Jackson presented a new way of articulating use of a multilevel inventory system to avoid that.

Jackson and Muckstadt have proposed changing the way the inventory is modeled by introducing a criterion for the fulfillment of demand (the fill rate) for each item at the

Robin Roundy and Jack Muckstadt were colleagues for 24 years within the School of ORIE.

From mentor to life-long friend

Jack Muckstadt was General George T. Babbitt’s professor and thesis adviser in the Air Force Institute of Technology (AFIT). “He had just finished his Ph.D.,” Babbitt recalls. “And I really knew nothing about operations research.”

When Babbitt earned his master’s degree in logistics management from AFIT in 1970, Muckstadt had given him access to a number of ideas that Babbitt has used throughout his logistics career. “Learning from Jack, I developed an understanding of the principles,” Babbitt says. “And we have been friends since then.”

Babbitt is a retired United States Air Force four star general, who served as Commander of the Air Force Materiel Command, from 1997 to 2000. The command conducts research, development, test and evaluation, and provides acquisition management services and logistics support necessary to keep Air Force weapons systems ready for war.

“It’s a complex organization,” Babbitt says of Materiel Command. “And it’s oftentimes difficult to reach consensus. I would think of what Jack would do—think through and structure the problem and not get bogged down in the side issues.”

Muckstadt taught his students that the most important part of an analysis is not the answer, Babbitt says. “Instead, you see what the model says about your system,” Babbitt says. “This process heightens your intuition, which you then bring to the next model.”

Muckstadt has remained a resource for advice throughout his career, Babbitt says. When the B1 bomber became operational in the 1980s, for example, it created many questions about logistical support.

“Jack was my resource to answer those questions,” Babbitt says. “Whenever in my career I became confused or lost, Jack would bring me back to my senses.”

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regional distribution center rather than incorporating such a requirement at the central distribution center. Consequently the mathematical model selects the distribution system level that is appropriate for each part number and concentrates (pools) the safety stock there. Through an example Jackson demonstrated that this approach achieves a better alignment between inventory investment and product demand.

Preparing for disaster
Muckstadt’s repeated assertions in recent years that he was about to retire has not prevented him from embarking on investigations of a new research area. Over the past decade he has developed a research partnership devoted to health care logistics with Hupert, who is a Senior Medical Advisor on preparedness modeling to the Centers for Disease Control (CDC).

Hupert’s talk, “A (Probabilistic) Walk through the Sciences of Disaster Preparedness, or Lessons from Jack,” was laced with Muckstadt aphorisms (see sidebar) and showed the wide range of systems and processes involved in their work together — from natural/biological phenomena to transport resources to information and communication systems and business processes. He noted that it can take a while for Muckstadt’s ideas to become accepted by the establishment. For example in 2009 Muckstadt urged the CDC to use the established wholesale network to distribute influenza prophylaxis. Only now has the CDC asked Muckstadt to model this approach for them.

Hupert described the work that he and Muckstadt have been doing with Master of Engineering students on the logistics and scheduling of urology operating rooms, with results that are winning wide acceptance at WCMC. The students showed that multiple process changes, most focused on information sharing, could save 60 minutes per operating room per day, worth millions of dollars.

If you’ve ever worked with Jack or taken one of his classes, you may have heard these:

- “You don’t know much until you know something!”
- “Things fail when you ignore the details.”
- “The way you are going to design your system is a reflection of how much you think you are going to know about the system.”
- “Keep your assets in the most flexible form for as long as is economically and operationally possible.”
- “Always ensure that the unit of measurement you are using is the same as that used by the person you are trying to convince.”
- “One thing that is certain is unpredictability.”
- “If you have no information, you need more inventory.”
- “If your face is in the fridge and your fanny is in the fire, on average you are comfortable.”
- “You never learn anything when your mouth is open.”
- “You have to know what people do to teach about it.”
George Nemhauser

- I left ORIE more than 27 years ago in 1985 to become the A. Russell Chandler III Chair in the School of Industrial and Systems Engineering and Institute Professor at Georgia Tech in Atlanta.
- Our daughter Wendy graduated from Cornell that year and my wife Ellen and I decided that we wanted to be in a warmer, urban place.
- I’m 75 now but still working full-time and enjoying research and business opportunities. I am a partner in the Sports Scheduling Group that prepares annual schedules for Major League Baseball and several college conferences including the Big Ten and SEC.
- I’ve continued my passion for wine started in Ithaca with friends Jack Muckstadt, Joe Thomas and others and still have 100+ cases to consume. I can’t say the same for my rusty tennis game and I do miss the old faculty tennis club. Although one can play outdoors for almost the whole year in Atlanta, I don’t think I’ll ever beat Bruce Turnbull.
- Ellen and I have recently moved to a 37th floor penthouse condo overlooking the city and walking distance to Georgia Tech, the art museum, theater and many good restaurants.
- We love hiking and travel. We have a mountain house about three hours from Atlanta in North Carolina. I think our most exotic and fun trip was to Bhutan a few years ago. We hiked at quite high elevations and explored the Buddhist culture of an undeveloped country.

Robin Roundy

- After 24 marvelous years as a faculty member in the ORIE, in the summer of 2007 I left Cornell to preside over the Colombia Barranquilla Mission of the Mormon Church. Our primary role was to support 180 Mormon missionaries. We were responsible for their spiritual and temporal well-being.
- Most of our missionaries came from South America. Every Spanish-speaking South American country was represented. Almost all of them were between 19 and 25 years old.
- For us, this experience was both profoundly rewarding and personally transforming. In our experience nothing is more gratifying than helping a person to grow in the joy and happiness that they experience, watching them achieve worthy, personal goals, and seeing them prepare effectively for their future lives.
- The opportunity to devote three years exclusively to the needs of others, and to activities that were intensely spiritual in nature, was richly rewarding and profoundly transforming.
- We returned from Colombia in July, 2010. Since then I have been a Professor of Mathematics at Brigham Young University.
- In July 2012 I became Chair of the mathematics department and I am excited about what the future holds.
- My wife Berta has been a full-time student at BYU since January of 2011. She is getting a double major in family studies (to become a marriage counselor) and in English-Spanish translation. She is thoroughly enjoying her studies. Both Berta and I continue to be involved in Church-related service.
Alumni, Colleagues Come to Ithaca to Celebrate with Jack

Gwen Spencer, Ph.D. ’12 came back to Cornell to take part in the Ph.D. poster session.

Current Ph.D. student Jing Xie and Professor Huseyin Topaloglu catch up on Jialei Wang’s current research at the Ph.D. poster session.

Brooke Schumm ’77 spends some time talking with current Ph.D. student Xiao Ting Zhao.

Jack enjoys some ribbing at the dinner in his honor.
Ph.D. student Matt McLean & Bob Blau, Ph.D. ’67 discuss Matt’s research at the poster session.

Professor Peter Jackson and his wife Nancy at the Friday dinner.

Jack Muckstadt is flanked by his friends and colleagues at a dinner in his honor October 26 at the Country Club of Ithaca.

Jack and his wife Linda (foreground) at the dinner in Jack’s honor at the Country Club of Ithaca.
At this fall’s festivities honoring Professor Jack Muckstadt’s retirement, the first and second recipients of a new ORIE Ph.D. Fellowship had their first opportunity to meet the donor, Sherri K. Stuewer ’73, M.S. ’75.

Gwen Spencer, who completed her ORIE Ph.D. in 2012, is from Normandy Park, Wash., and completed her undergraduate work in mathematics at Harvey Mudd College. She is currently a Neukom Postdoctoral Fellow at Dartmouth College and will join the mathematics department at Smith College in the summer of 2014. “It was a real pleasure to meet Sherri in person,” she said. “It is inspiring that Sherri has been involved at such a high level in shaping the dialog on important energy and environmental issues,” she added.

Alice Paul, a first-year Ph.D. student in ORIE from Madison, N.J., also graduated in mathematics from Harvey Mudd College. She won the 2012 INFORMS Undergraduate Research Prize, for her paper “Detecting Covert Members of Terrorist Networks.” Her undergraduate advisor was Susan Martonosi, ORIE ’99, who received her Ph.D. from MIT and was a visiting Assistant Professor at Cornell in 2008. “I am excited about the Fellowship,” she said, because it “allows me to stay in Ithaca during the summer and explore research ideas.” She was delighted to meet Stuewer, who “was very warm and welcomed me with a hug” when they met, she recalled.

Stuewer, who earned her undergraduate and M.S. degrees in ORIE, retired at the end of 2011 as Vice President — Environmental Policy and Planning for ExxonMobil Corporation. She has served Cornell as head of the Engineering College Council and a member of the Board of Trustees. “It was very rewarding to meet the students who are receiving support from the fellowship” she established in ORIE. “I am delighted to be able to support such capable students, and I am a bit in awe of their energy and enthusiasm for their research.”

Spencer’s research deals with the application of operations research to problems in sustainability. Working with Professor David Shmoys, in her thesis she developed algorithms that find provably near-optimal solutions to problems that involve uncertainty and have spatial structure that can be represented by graphs. She applied these algorithms to determining the optimal balance of preventive management and real-time firefighting to contain wildfires, and to a problem related to containment of invasive species. “I love learning from scientific experts such as ecologists and foresters about the systems they study and then thinking about how to really push the set of questions we can ask together,” Spencer said.

Paul’s prize-winning paper investigated a mathematical model of communication among terrorists, with the objective of determining the optimal balance of preventive management and real-time firefighting to contain wildfires, and to a problem related to containment of invasive species. “I love learning from scientific experts such as ecologists and foresters about the systems they study and then thinking about how to really push the set of questions we can ask together,” Spencer said.

Paul’s prize-winning paper investigated a mathematical model of communication among terrorists, with the objective of determining the best way to increase the visibility of a key leader of a network by selecting a subset of members whose removal maximizes the communication that is thereby forced to go through that leader. In her work Paul built upon a framework for network disruption and covert networks established by Martonosi and others. At Cornell, Paul says she is likely to work in discrete optimization, and will begin research work with Professor David Williamson soon. Her awareness of Williamson’s work was one of the things that attracted her to Cornell in the first place, in addition to meeting with some ORIE graduate students, including Spencer, during a visit last year.
Inspired in part by Jack Muckstadt’s philosophy of outreach, and with planned support from Jack and Linda, ORIE is planning a new academic initiative: ORACL - “Operations Research Advice and Consultation Laboratory.” A key new center for the School, ORACL will channel inquiries and projects from companies to center staff, faculty, and students at every level, recognizing, organizing and energizing the School’s current informal efforts. Faculty envisages an exciting new interface, exposing Ph.D. students to real-world problems and enriching their recruitment, igniting M.Eng. projects and internships, strengthening links with alumni, matching industry inquiries to faculty interests, and heightening the School’s research profile. ORACL would link seamlessly to Cornell NYC Tech.

Initial commitments will help jump-start both postdoctoral staffing for ORACL and an associated partial Ph.D. fellowship, two key ingredients for the center’s success. Other components significant for ORACL to thrive are sketched alongside.

Resources for ORACL

- Named ½ Ph.D. Fellowship (the “anchor” gift for ORACL) - $750K endowment.
- Named office suite for ORACL (including space for postdoctoral staff and Ph.D. students, and work space for an M.Eng. project team) - in the range $100-500K.
- Named endowment for summer intern support - $100K.
- Named endowed M.Eng. awards - $100K each.
- Discretionary ORACL operations fund, to support start-up and operating expenses, computing equipment and infrastructure, M.Eng. project team support, communications equipment linking to Cornell NYC Tech and industry partners - gifts of any size.

For the growth of ORACL, we ultimately aspire to some large gifts:

- Research Associate to manage ORACL - $2MM endowment
- Additional partial Ph.D. Fellowships

In partnership with Jack’s gift, we plan to raise funding from alumni and friends for the launch of ORACL. Please contact Christopher Miller at cm284@cornell.edu if you are interested in helping!

We want to hear from you...

If you would like to share information about your current activities, please visit the ORIE alumni page at http://www.orie.cornell.edu/alumni and go to “Submit an Alumni Note.” Feel free to include updated contact information or other items of interest, including:

- Career News
- Personal Highlights/Milestones
- Get Married? Have a Child?

In addition to publishing the alumni notes online, we’ll add Alumni Notes to future issues of ORIE News.

Feel free to add a photo to your note submission.
Please join the School of Operations Research and Information Engineering to celebrate Jack’s dedication and leadership with a gala event in New York City.

**Date:** Friday, April 5, 2013  
6:30pm Cocktail Reception  
7:30pm Dinner

**Metropolitan Club**  
1 East 60th Street  
New York, NY  
212-838-7400

Cost: $50 per person

To register, please visit [http://tinyurl.com/bosje2p](http://tinyurl.com/bosje2p).

Whether you’re able to attend or not, we encourage you to share any memories, pictures, videos or comments about Jack by sending an attachment to the following email address: upload.Mucksta.9n138ketwc@u.box.com

**Parking**  
800 Fifth Avenue at 61st Street  
$45 - for 3-8 hours  
$51 - for 8-12 hours

Guests will receive a 5% discount if their ticket is stamped by the club concierge.

**To Reserve a Room at the Metropolitan Club Hotel**  
Phone: (212) 838-7400

- Standard Queen - $275 + tax  
- Queen Deluxe - $295 + tax  
- Junior Suite - $425 + tax
I am proud, once again, to share some of the more significant developments in ORIE over the past few months.

With all the excitement about Cornell NYC Tech, reminders that ORIE is already a New York City school — close to fifty M.Eng. students spent this Fall at Cornell Financial Engineering Manhattan — are always timely. Except, that is, when the reminder is Superstorm Sandy. Sandy shut down CFEM for a week, and our students scattered under evacuation orders, many bereft of accommodation for the semester. CFEM’s remarkable Director, Victoria Averbukh, ably supported by Judy Francis in NYC and our own indefatigable Director of Administration, Jessica Best, coordinated the return to normalcy, borrowing excellent NYC teaching space from Cornell’s ILR School, and arranging comfortable nearby accommodation — an extraordinarily seamless effort in very difficult circumstances.

By comparison, Ithaca seems peaceful, despite continuing waves of faculty renewal. Pierre Patie, a risk specialist, joined the ORIE faculty this semester from Brussels, and Kris Iyer, a recent Stanford Ph.D. focused on e-commerce and information engineering, will arrive this summer. They join two other recent faculty hires: Jim Dai, one of the world’s leading experts on applied probability and queuing networks, and Andrea Minca, who studies financial networks.

Our hiring efforts continue apace. ORIE is one of a handful of departments leading the initial planning for Cornell NYC Tech, so we are busy exploring star faculty candidates for the new graduate campus. In parallel, we continue to put down fresh roots in Ithaca after critical faculty retirements. This semester we are interviewing candidates in the area of Applied Operations Research, faced with the formidable task of rebuilding after Jack Muckstadt’s long-dreaded retirement.

Jack has been a cherished member of ORIE for nearly forty years, acting as not only as Professor and teacher, Director, and advisor, but also as a mentor and role model for countless students and many faculty. As you have seen, a convivial and lively Ph.D. Reunion Weekend and Retirement Dinner last semester reminded us all how much we owe to Jack, and enjoy his company. More broadly, I invite you all to celebrate Jack and his career (and mourn his retirement!) by joining me and the ORIE faculty at a “Jack Muckstadt Retirement Celebration” in New York City on April 5, 2013.

Jack and Linda Muckstadt plan to support the ORACL initiative (see page 13) as part of their ongoing generosity to the School and University, a broader commitment they intend to continue through the Cornell University Foundation. Initial commitments will help jump-start both post-doctoral staffing for ORACL and an associated partial Ph.D. fellowship, two key ingredients for the center’s success. In partnership with support from Jack and Linda, we plan to raise funding from other alumni and friends for the launch of ORACL. The article on page 13 outlines other funding opportunities for your consideration, each critical to the success and expansion of ORACL. We invite you to join us and help celebrate Jack’s legacy in ORIE by making a gift in support of ORACL.

Among many benefits, ORACL will help support, guide and grow our highly-ranked Ph.D. program. This program, fundamental research and teaching glue for the School, remains a top priority for ORIE, and we have been touched by generous support for it from our alumni. Particularly remarkable most recently have been multi-year efforts to build partial Ph.D. Fellowships by Johnny Fung, Art Geoffrion, and Bob Kaplan. Such efforts remain vital for the School’s continued excellence.

We are always excited to hear from you - our alumni. Please keep in touch with ORIE through our web site. Submit an alumni note, read a note from one of your fellow classmates, add your photo and contact information to the alumni listing section, and find out different ways that you can help ORIE by visiting http://www.orie.cornell.edu/alumni/

Until next time,

Adrian Lewis
ORIE Director
Please join us in NYC to honor Jack

Help us celebrate Jack Muckstadt’s 38 years of service to Cornell and the School of ORIE on Friday, April 5, 2013

See page 14 for more details