Most of us, at one time or another, find ourselves reflecting on the courses we took while we were students at Michigan. It may be because the course contained information that is particularly relevant to a problem we have worked or are working on. It may be we remember how we struggled with a particular topic. And it may be because the course inspired us to become industrial engineers or to pursue additional studies in a given area.

A big part of any course is the instructor. We could have stayed home and read the book. That might have saved some money but it is doubtful that the experience would have been as rewarding.

We chose to come to Michigan to take courses from faculty who are experts in their field, who have knowledge of current practices and are helping to develop new practices; people with a passion for their work and a desire to share it with others.

The IOE Department at Michigan has a history of many such faculty. A few of them have been with the Department since its earliest days. In this issue, we highlight several faculty members who have helped to shape IOE into one of the most outstanding departments in world: Dick Wilson, Walt Hancock and Seth Bonder. This feature will continue in our next issue when we profile Katta Murty, Don Chaffin
Richard Wilson
In 1955 Richard Wilson was working in Jackson, Michigan as a young sales engineer when his employer, the Westinghouse Electric Corporation, offered him a scholarship to attend the Harvard MBA program. He and his wife decided that they preferred to stay in Michigan and in particular, Ann Arbor. Towards this end he approached Wyeth Allen who had just been appointed chairman of the Mechanical Engineering Department after a successful career as a management consultant in Milwaukee and as president of the U of M Alumni Association. Professor Allen was specifically charged with moving the Industrial Engineering Faculty (Professors Page, Vines, Steffy and Gordy) to a new Department of Industrial Engineering. Professor Wilson was offered an instructorship (50% in Mechanical Engineering and 50% in Engineering Mechanics), with the understanding that he would simultaneously pursue a Ph.D. in Industrial Engineering with Dean Wilson, a research engineer at the Willow Run Laboratories who was doing traffic and military simulations using an IBM 704 computer (the first mass-produced computer with floating point arithmetic hardware introduced by IBM in 1954). Professor Wilson recalls that his starting salary was $6,000 per year.

The Department of Industrial Engineering became a reality in 1956. The Operations Research program started by Merrell Flood, Professor of Mathematical Biology, and Robert Thrall, Professor of Mathematics, was housed in the Rackham Graduate School. The program included courses in math programming, math modeling and an OR seminar which were soon transferred to the new Industrial Engineering Department. Professor Dean Wilson introduced a course in computer simulation. Several Business School courses were quickly added to the program: data processing taught by Carl Pollmar, statistical methods taught by Wally Gardner, and organizational theory.

Professor Wilson received his Ph.D. in 1961 and immediately joined the IE Department increasing the faculty to seven full time and three part time faculty members. He moved quickly through the professorial ranks and served as the IE Department chair from 1968 through 1972, as IOE Department Chair from 1973 through 1978 and again for six months in 1985. Many will remember that the IOE Department was located on the second floor of the West Engineering Building (now West Hall) on the corner of East University and South University. Professor Wilson became Associate Dean in 1972 where he was charged with studying procedures for...
data analysis, facility needs, the budgets in the College of Engineering and with developing a program for moving the College to North Campus (all the kind of things that IEs do).

Some may remember taking plant layout and materials handling courses from Professor Wilson or they may remember the course on numerical control of machine tools he taught in collaboration with Professor Les Colwell from the ME Department. Later, Professor Wilson became involved in a venture by Charles Hutchins called Manufacturing Data Systems Inc. (MDSI). His focus on industrial practices led to a number of collaborations such as: flow analysis of material handling systems with William Maxwell, analysis of Air Force engine inventories with Herb Galliher, scheduling preventive maintenance of power generation facilities with John Muckstadt, and CAD/CAM international Delphi forecast with Leo Colwell.

Professor Wilson occasionally served as a faculty instructor for a graduate seminar in operations analysis. He recalls the family business of one of his students from India was transporting elephants from southern India to markets in the north. He wanted to use his IE methods to determine the most economic and feasible modes of transportation for this special situation.

**Walton Hancock**

Professor Emeritus Walton Hancock joined the faculty of Industrial Engineering in 1959 as a Lecturer from the Operations Research Group of the Willow Run Laboratories. The Department offices were still on the second floor of West Engineering and it was just three years since the Department “split off” from Mechanical Engineering. One of Professor Hancock’s first courses was the IOE Work Measurement course (now IOE 463). He assumed responsibility for a research program sponsored by the Methods Time Measurement Association (MTM), which became the Engineering Human Performance Laboratory in 1959 and is now the Center for Ergonomics.

Professor Hancock established a close relationship with the Chrysler Corporation where he and many of his students worked on problems related to work measurement, heat stress and quality.

In the early 70s, Professor Hancock began a productive collaboration with Professor Clyde Johnson who had a large project with the University Hospital on the application of IE to hospital systems, such as laundry and food handling. He also assumed a joint appointment with the Hospital Administration Program in the School of Public Health where he worked with Professor John Griffith on studies to improve quality and cost issues in hospital systems. With funding from the National Institute for Health, he and his students worked on inpatient admissions, nursing, ancillary services, operating room scheduling, and transporter systems.

Professor Hancock served as Chair from 1962 to 1968. During that time, the Department hired ten new faculty members who many of you will remember: Professors Chaffin, Pollock, Teichroew, Sibley, Disney, Bradley, Herzog, Galliher, Wilson, Murty, Miller, and Bonder. During that time, the course offerings were expanded to include computers, Operations Research, Human Factors and Production Engineering. Undergraduate enrollment grew to 200 during that time. Sponsored research programs, graduate student education and faculty research publications all increased significantly during this time. In the 1960s Professor Hancock, joined by research engineer James Foulke and several graduate students, developed the basic information needed to better predict worker motion times and learning times on jobs.

In the early 80s Professor Hancock became involved in studies of the Toyota Production system and Lean manufacturing. He developed a new course, “Manufacturing Systems.” His class would visit three plants where the students compared what they were taught with observed plant processes. After each tour, the class met with the plant managers to discuss their observations and recommendations. This course was very popular with **CONTINUED ON PAGE #16**
Welcome to IOE News, our newsletter for alumni and friends of the Department of Industrial and Operations Engineering. The feature article in this issue explores the proud history of the University of Michigan Industrial and Operations Engineering Department. The article features faculty including Richard Wilson, Walton Hancock and Seth Bonder. The history will be continued in our next issue with memories from Don Chaffin, Katta Murty and Stephen Pollock. I’m sure most of you will remember these faculty members from your time at Michigan.

As the new Chair of the IOE Department, I have enjoyed this look back on our department’s rich history. I’m also excited about developments happening in our department currently. This issue will introduce you to our newest faculty members, some amazing student athletes in the department, and just a few of our accomplished alumni including David H. Gustafson who was our 2009 IOE Alumni Merit Award winner.

I’m also proud of the accomplishments highlighted in our student and faculty awards section. The recognitions listed highlight just some of the exciting projects and research students and faculty in our department are working on.

You’ll see throughout this issue that we’ve had an exciting year in the department. As I see students arriving on campus for the start of the fall term, I look forward to another year that is just as productive and exciting as the last.

I hope to see many of you at some upcoming events including Alumni Weekend 2010 and our INFORMS reception. You’ll find more information about these events on page 7. No matter when you are on campus, our doors are always open to you. Please drop by!

As always, this is your newsletter and we enjoy hearing from you. I hope to highlight more alumni news in upcoming newsletters and ask that you share what you’ve been up to, both professionally and personally, so that we can highlight some of your accomplishments in future issues. Please send your comments, suggestions, news items, etc. to IOENewsletter@umich.edu.

Go Blue!
Mark S. Daskin
News and Notes

**Professor Amy Cohn testifies before Congress on the ‘three hour airline bill’**

University of Michigan IOE Professor Amy Cohn testified before Congress on September 22nd 2009 about the “three hour airline bill.” The bill proposes giving passengers the option of leaving a plane after it has been grounded for three hours.

Professor Cohn testified that, while introducing the three hour rule might help in some cases, it would not have a big impact. “I don’t believe the three hour rule will actually change things very much at all, given the small number of affected flights. And when it does change things, I think some passengers may be helped, and others may be harmed,” she stated.

Cohn pointed out that in thunderstorms it may not be safe or possible to unload passengers. She suggested, instead of the three hour rule, airlines focus on reducing the congestion that escalates delays and improving communications so airlines can better provide each other with assistance.

**IOE Student establishes scholarship fund**

Inder Dhillon, an IOE master’s student and part of the Engineering Global Leadership Honors Program, has established the Dhillon-Randhawa Family Educational Scholarship Fund. The first scholarship was awarded to Vincent (Moye) Ji for the 2009-2010 school year. Since all EGL students display outstanding academic achievement and leadership, financial need will also be a factor in the scholarship. The IOE Department thanks Inder for his generosity and leadership. Many Michigan students will benefit from Inder’s gift.

**IOE Doctoral student Stanko Dimitrov in the news at U of M**

Rahul Sami, an assistant professor in the U-M School of Information and Stanko Dimitrov, a doctoral student in the Department of Industrial and Operations Engineering, are authors of a paper on the research that Dimitrov presented July 11 at the ACM Conference on Electronic Commerce in Chicago.

The paper presented a new mathematical model which suggests that bluffing in prediction markets is a profitable strategy more often than previously thought. The analysis calls into question the incentives such markets create for revealing information and making accurate predictions. The researchers also pose a tactic to discourage bluffing.

**IOE student Thomas Ferris interviewed in Ergonomics in Design**

IOE student Thomas Ferris, the president of University of Michigan’s chapter of the Human Factors and Ergonomics Society (HFES), was interviewed for an article in the Winter 2008 issue of Ergonomics in Design.

In the article, Ferris discusses the activities of the HFES chapter, the research and educational opportunities available for ergonomics students at Michigan, and the school’s strengths in physical and cognitive ergonomics. HFES regularly organizes tours of research labs, hosts speakers from academia and industry, and presents to current and prospective students.

**IOE 424 Project Team recommends Segways for College of Engineering tours**

In IOE 424 last year Mycah Gambrell, Alp Karidicali and Alexander Wiraatmaja investigated the logistics of using Segways for College of Engineering tours. In IOE 424, Practicum in Production and Service Systems, student teams work with an organization on a design project with potential benefit to the organization and the students. The students did a thorough investigation of the benefits and feasibility of bringing Segways to campus.

Their work was enough to convince the College of Engineering to give the Segways a try. The College of Engineering purchased ten Segways and is using them for campus tours. Using the Segways allows campus visitors to see more of North Campus than they would on a traditional walking tour. Don’t be surprised if you see a tour group on Segways the next time you’re on North Campus!
IOE Athletes

The Industrial and Operations Engineering Department is home to some very accomplished athletes. Jerome Singleton and Trevor Young are two IOE students who have juggled academics and rigorous training and competition schedules, Jerome as a runner and Trevor as a pairs figure skater.

Jerome Singleton

Jerome Singleton, a senior Industrial and Operations Engineering student, won a silver medal in the 2008 Paralympics 100-meter dash and his relay team won a gold medal in the 4x100-meter dash. Jerome also broke a world record in the 60-meter dash on January 23rd at the Simmons-Harvey Invitational track and field. The event was Jerome’s second indoor 60-meter dash ever and he was proud to break the record on his home track at U of M.

Jerome considered a few different colleges but says University of Michigan Engineering was the most flexible in allowing him a late start date that accommodated his track schedule. Throughout his career at U of M, the College of Engineering continued to work with him to allow him to juggle both track and schooling. Jerome says professors who were flexible about exam and assignment dates as well as classes with video lectures really helped him to manage his schedule effectively.

In addition to classes and track, Jerome travels the U.S. and talks to congressmen and other interested parties about the importance of funding for disabled sports. It might seem like a lot for one person to manage but Jerome says he’s developed a strict schedule that makes it all possible.

“Training makes me more structured,” he says. And he carries that sense of structure to his studies as well. Jerome chose Industrial and Operations Engineering because it was the best fit for his math background. While at Michigan he has developed an interest in Health Systems and quality control, especially as it relates to artificial limbs.

Jerome, who came to Michigan from South Carolina, jokes that no one warned him how cold Michigan would be but says his experience at U of M and in the IOE Department has been overwhelmingly positive. He appreciates the accessibility of the faculty and particularly notes the influence of Professors Gary Herrin and Romesh Saigal. He also mentioned the Department’s Graduate Student Instructors who are always available to fill in the blanks with information students might not get in class. “IOE is not always easy but, if it was easy, it wouldn’t be worth it,” he says.

He says he appreciates being around “a lot of students who have the desire to excel and make a mark on the world.” And there’s no doubt that Jerome himself will be one of those IOE students to make his mark on the world. He plans to graduate in December and after that he is looking to prepare for both the 2012 Paralympics and graduate school.

Trevor Young

Trevor Young, an Alpha Pi Mu officer and editor of the IOE Blueprint, is a pairs skater. He and partner Andrea Best took First Place in the 2010 Midwestern Sectional. They went into Nationals this year being one of eight alternates for the 2010 Winter Olympics. Though Trevor and his partner didn’t make the Olympics in 2010 and they retired as a team this past year, he says he’s pleased that they had a good career together. When we spoke he was searching for...
a new partner and planning to work towards the 2014 Olympics. “If I stick with skating, that will be the goal – 2014.”

Like Jerome, Trevor noted how accommodating U of M Engineering was in working with his athletics schedule. Michigan was always his dream school and he appreciated the flexibility that allowed him to pursue both his academic and athletic goals. He was able to attend classes at Michigan while training in Canton at one of the top skating training facilities in the world.

Trevor mentioned that advisors like Wanda Dobberstein in IOE and Mercedes Barcia in the College of Engineering were always there to help him with academic and scheduling issues. He also noted how great the professors were. “I’ve never had a bad professor in IOE.” Trevor especially enjoyed 310 with Professor Amy Cohn and 373 taught by Bob Goodsell. He also noted Graduate Student Instructor Marcial Lapp as one of his favorite instructors in the IOE program.

In addition to enjoying his courses, Trevor noted his membership in Alpha Pi Mu as one of the defining aspects of his time in IOE. “I really enjoyed being in APM. I made a lot of my best friends in school through that.” He says he would suggest participation in APM or other student societies to anyone as a great way to meet people and get more involved.

As an APM officer, Trevor became editor of Industrial Blueprint, the IOE student newsletter put out by APM. He says he truly enjoyed the opportunity to write for an audience of his fellow students. He’d not previously had anything published but, as editor, he had the front page of every Blueprint. The Blueprint contains everything from student news to course reviews designed to help students decide which courses to take.

Trevor, graduated from IOE in April and plans to return to Michigan for either a Masters in IOE or an MBA. He’s started training with a new skating partner, Becky Bereswill, and the two of them began competing together this summer. They’re shooting for a place on the 2014 Olympic team.

**Notices**

**Ph.D. Alumni Reunion**
During the 2009 Alumni Weekend the IOE Alumni Board discussed holding a reunion for Ph.D. Alumni. We hope to have the reunion sometime during the fall of 2011. We’ll share more information in our newsletter and on our website as plans are made.

**Alumni Weekend 2010**
Michigan Engineering Homecoming Weekend will be held October 15-16, 2010. The IOE Department will host several IOE specific events on Friday, October 15th including a lunch and seminar by our Alumni Award Winner, Marlin Thomas.

**Reception at INFORMS**
There will be a Michigan Nite reception for IOE Alumni attending INFORMS on Monday November 8th from 7 - 9 p.m. in room 408 of the Hilton Austin hotel. No RSVP necessary.

**Alumni News Section**
We plan to have an Alumni News section in our future newsletters. We would like to learn about what you are currently doing, both professionally and personally, to the extent you want to share that information with other alumni of the Department. Please send information to IOENewsletter@umich.edu.
New Faculty in IOE

Lawrence D. Burns, Professor of Engineering Practice; Ph.D. (Civil Engineering), University of California at Berkeley

On October 1, 2009, Larry Burns completed a distinguished career with General Motors, serving as corporate vice president of Research & Development and Strategic Planning. In this role, he oversaw GM’s advanced technology, innovation programs, and corporate strategy. He also served on GM’s top decision-making bodies for global operations and products.

Burns has been a major voice for the “reinvention” of the automobile and the diversification of transportation energy. Within GM, he personally championed vehicle electrification, “connected” vehicles, fuel cells, bio-fuels, advanced batteries, autonomous driving, and a series of innovative concept vehicles. He has been a leading advocate for design and technology innovation focused on the total customer experience and the application of operations research.

Mark S. Daskin, Clyde W. Johnson Collegiate Professor of Industrial and Operations Engineering and Chair; Ph.D. (Civil Engineering), Massachusetts Institute of Technology

Professor Daskin received his BS from MIT, certificate of post-graduate study in engineering from Cambridge University, and his Ph.D. from MIT. His research focuses on the application of operations research techniques to problems in transportation, supply chain management and facility location modeling, and healthcare.

Professor Daskin has served as the editor-in-chief of both Transportation Science and IIE Transactions, was the president of INFORMS in 2006 and vice-president for publication from 1996-1999. He also served as the chair of the Department of Industrial Engineering and Management Sciences at Northwestern University from 1995-2001. He is a fellow of both INFORMS and the Institute of Industrial Engineers. Daskin has also received the Fred C. Crane Award for Distinguished Service from the Institute of Industrial Engineers as well as the Institute’s Technical Innovation Award.

Mariel Lavieri, Assistant Professor; Ph.D. (Management Science), University of British Columbia

Professor Mariel Lavieri joined the faculty in 2009. In her work, she applies operations research to healthcare topics. Her most recent research focuses on medical decision making, in particular on determining optimal treatment protocols by explicitly modeling stochastic disease progression. She has also developed models for health workforce planning, which take into account training requirements, workforce attrition, capacity planning, promotion rules and learning.

Professor Lavieri is the recipient of both the Bonder Scholarship (for her potential in making a significant contribution to the field of applied operations research in health care services) as well as the Pierskalla Award (awarded for the best paper presented in a Health Applications Section sponsored session at INFORMS).
Professor Amy Cohn awarded the IIE OR Division Teaching Award for 2010

Dr. Amy Cohn is the 2010 recipient of the Annual Award for Excellence in the Teaching of Operations Research from the IIE Operations Research Division.

The award committee was impressed with Dr. Cohn’s innovative techniques that were developed to facilitate better learning experiences for her students. The OR Division and award committee believe that Dr. Cohn is dedicated to her students’ education, as evidenced from the comments provided by students in the nomination package. Dr. Joel Sokol of Georgia Tech is the co-award winner this year.

We are pleased to announce the winners of the 2010 Outstanding Professor and GSI awards, Professor Amy Cohn and GSI Marcial Lapp. In 2009, the awards went to Professor Yili Liu and GSI David Hamilton.

Every March, IOE students cast their vote for instructors who have made great impacts on their education and lives. The recent recipients follow in a long tradition of teaching excellence.

Four IOE Ph.D. students receive NSF 2010 Graduate Research Fellowships

The IOE Department was very successful in this year’s National Science Foundation Graduate Fellowship competition, with students winning four of the nine Industrial Engineering fellowships awarded nationally.

The winners are:
Paula Lipka
Rob Riggs
Kathryn Schumacher
Brendan See
In addition, Maggie Ramirez received Honorable Mention in the NSF competition.

Christopher Best awarded SMART Scholarship

IOE Ph.D. Candidate Chris Best was offered a 3-year SMART Scholarship (Science, Mathematics And Research for Transformation) from the ASEE (American Society of Engineering Education).

The scholarship will provide a monthly stipend, full tuition, a book and education expense allowance, health insurance funding, and some other benefits. Less than 10% of this year’s applicants were selected for this Award.

Soroush Saghafian wins the 2010 Murty Prize

Ph.D. student Soroush Saghafian has been chosen to receive the 2010 Murty prize. His paper is titled “Dynamic Control of Unreliable Flexible Servers: The ‘W’ Network and Beyond” (joint work with Mark Van Oyen and Bora Kolfal).

The committee reviewed five papers nominated for the annual award, formally known as the Katta Murty Prize for Best Research Paper on Optimization by an IOE Student. All were of exceptional quality.

Jasmine Way receives North Campus MLK Spirit Award

Jasmine Way, a senior in IOE, received a 2010 North Campus MLK Spirit Award. The North Campus MLK Spirit Awards celebrate students who through their achievements in building diverse communities, leadership responsibilities and service to the University of Michigan community and beyond exemplify and advance Dr. King’s vision.

Among her many campus contributions, Jasmine was recognized as program chair of the National Society of Black Engineers. Jasmine is responsible for a mentoring program at Ypsilanti High School, ACT/College Prep Saturday programs and a supplementary engineering program at Adams Elementary. She shares her commitment to community service with the Engineering Global Leadership students in her role as community chair in the EGL organization.

Jasmine’s nominator noted that “she has demonstrated a commitment to
understanding the human-race from a global perspective through numerous study abroad experiences.”

**Mark Willar and Austin Kloske Receive Crawford Award**

Mark Willar received the Winter 2010 Andrew S. Crawford Award for Entrepreneurship Excellence and Austin Kloske was honored with the award in Fall 2009. This award is named after the late Professor Andy Crawford, in honor of his entrepreneurial spirit and interest in imparting business skills to Michigan engineers.

Mark’s proposal was for MovementWorks Club, a year-round activity for children with autism that provides both structured therapy and extracurricular belonging. Austin worked on a project to help make clean water available in Yemen and created the website http://saveyemen.org/. Congratulations to both recipients.

**IOEs shine in College of Engineering 2010 Student Leaders and Honors Awards**

IOE is pleased to announce the list of 2010 CoE awards received by IOE graduate and undergraduate students.

- Josselyn Frankiewicz, Distinguished Leadership Award, Undergraduate
- Emily Garcia, Distinguished Leadership Award, Undergraduate
- Ambreen Sayed, Distinguished Leadership Award, Undergraduate
- Megan DeFauw, Distinguished Leadership Award, Graduate
- Jasmine Way, Distinguished Achievement Award, Undergraduate
- Thomas Ferris, Distinguished Achievement Award, Graduate

**IOE Student Brooke Silverstein awarded Irv Otis Scholarship by IIE (Greater Detroit Chapter)**

Brooke Silverstein has received the Irv Otis Scholarship from the Institute of Industrial Engineers (Greater Detroit Chapter). The scholarship, which is awarded each year by the Detroit IIE Senior Chapter, is based on grade point average, IIE student chapter participation and nomination by the Faculty advisor for the student’s chapter. The successful scholarship candidate must show that she is dedicated to the Industrial Engineering profession and IIE. The scholarship is to honor Irv Otis for his outstanding contributions and services in the Industrial Engineering profession.

**Mark Daskin receives INFORMS Kimball Medal**

Mark S. Daskin, chair of the IOE Department, received the George E. Kimball medal from the Institute
for Operations Research and the Management Sciences (INFORMS) at the recent annual meeting of the Institute. The award recognizes “distinguished service to the Institute and to the profession of operations research and the management sciences.”

IOE STUDENT KAITLYN PEALE EARNS ACADEMIC ALL-BIG TEN ACCOLADE

Cross country runner Kaitlyn Peale, a junior in the IOE Department, earned her first Academic All-Big Ten accolade after claiming All-American honors in her first NCAA Championship appearance last month. Peale won the EMU Classic, finished fourth at the Big Ten Championships and was runner-up at the NCAA Regional.

Forty one University of Michigan student-athletes made the fall 2009 Academic All-Big Ten teams list. To be eligible for the Academic All-Big Ten, student-athletes must be letter winners in at least their second academic year at their institution and have a grade-point average of 3.0 or above.

PROFESSOR AMY COHN AND IOE ALUM ADA BARLATT RECEIVE BEST APPLIED PAPER PRIZE IN SCHEDULING AND LOGISTICS

Professor Amy Cohn and recent IOE alum Ada Barlatt (’09) (now an Assistant Professor at University of Waterloo) were selected to receive the Best Applied Paper Prize in Scheduling and Logistics from IIE Transactions. Their paper “Using Composite Variable Modeling to Achieve Realism and Tractability in Production Planning: An Example from Automotive Stamping” was selected by a committee of judges from journal issues for the period from July 2008 through June 2009.

MATT REED ELECTED AS A FELLOW OF SAE INTERNATIONAL

Matt Reed, Research Associate Professor with joint appointments in IOE and UMTRI, has been elected as a Fellow of SAE International. His Fellow Award was presented at the SAE 2010 World Congress in Detroit in April.

The SAE Fellow Award was established to recognize important engineering, scientific, and leadership accomplishments to enhance the status of SAE’s contributions to the profession and to society. Matt was selected based on his outstanding accomplishments to industry practices in automotive ergonomics and safety.

PROFESSOR JUDY JIN ELECTED INFORMS VICE PRESIDENT/INTERNATIONAL ACTIVITIES

Professor Judy Jin has been elected Vice President/International Activities for The Institute for Operations Research and the Management Sciences (INFORMS).

INFORMS is the largest professional society in the world for professionals in the field of operations research (O.R.) and serves the scientific and professional needs of O.R. educators, investigators, scientists, students, managers, and consultants.

FOUR IOE STUDENTS ON WINNING TEAMS IN TAUBER SPOTLIGHT! COMPETITION 2009

IOE students, Rushabh Gandhi, Javier Huerta, Eric Rudy, and Brian Rumao, were among members of the winning teams for the 2009 Tauber Institute for Global Operations Spotlight! competition. Twenty-five student teams presented the results of their 14-week summer projects and competed for over $40,000 in scholarship awards.


BHARAT MOORTHY, MS-IOE ’09, RECEIVES THURMOND B. WOODARD/DELL/UNITED NEGRO COLLEGE FUND CORPORATE SCHOLARSHIP

Bharat Moorthy, MS-IOE ’09, is the recipient of the Thurmond B. Woodard/Dell/United Negro College Fund Corporate Scholarship valued...
Moorthy, as a member of the 2009 Tauber project team at Dell, earned the award based on his credentials, grade point average and performance over the summer. The Corporate Scholars Program was established in association with the UNCF to increase student interest in technology at Dell, while expanding the company’s pool of prospective diverse employees.

The scholarship is given annually to a student intern who embodies the spirit of cultural inclusion and global engagement. “Scholars like Bharat give the program its true meaning,” said Shea Warren of Dell’s University Relations team. “His hard work as an intern and student has paved the way for him to receive this scholarship.”

Professor Judy Jin and Qingyu Yang Receive Best Paper Award at 2009 Annual Industrial Engineering Research Conference

Professor Judy Jin and then IOE research fellow Qingyu Yang received the Best Paper Award at the 2009 Annual Industrial Engineering Research Conference for their paper, “Separation of Individual Operation Signals from Mixed Sensor Measurements”.

Professor Jeffrey Liker Receives 2009 Shingo Prize

Jeffrey Liker received the 2009 Shingo Research Prize for his recent book, “Toyota Culture.” He received the Research Prize at an awards ceremony on May 8, 2009 in Nashville, Tennessee. The Shingo Research Prize recognizes and promotes research and writing regarding new knowledge and understanding of manufacturing consistent with the philosophy of The Shingo Prize for Operational Excellence Guidelines.

This is the eighth Shingo Prize for Operational Excellence that Jeffrey has been awarded. One of these previous Shingo Awards was in 2005 for his book, “The Toyota Way,” which has sold over 500,000 copies.

Professor Monroe Keyserling and IOE Ph.D. Neal Wiggermann Receive Award at the 2009 American Industrial Hygiene Conference

Monroe Keyserling and IOE Ph.D. student Neal Wiggermann, along with Dr. Robert Werner and Nancy Gell (UM Department of Physical Medicine and Rehabilitation) received the “Best Podium Paper in Ergonomics” award at the 2009 American Industrial Hygiene Conference in Toronto.

Their paper, “An Analysis of Inter-worker Variability in Lower Body Postures During Assembly Line Work”, demonstrated that individual work practices have a significant impact on exposure to ergonomic stressors on jobs with highly-structured work content. This study was sponsored by the UAW-General Motors National Joint Committee on Health and Safety.

Joy Oguntebi Inducted into the University’s Edward Alexander Bouchet Graduate Honor Society

On Friday April 10, 2009, Rackham Graduate School hosted a reception for the new members of the University’s Edward Alexander Bouchet Graduate Honor Society. Joy Oguntebi, an IOE Ph.D. graduate, was among the inductees.

Named for the first African American doctoral recipient in the United States (in Physics from Yale University in 1876), the Edward Alexander Bouchet Society recognizes outstanding scholarly achievement and promotes diversity and excellence in doctoral education and the professoriate. The Bouchet Society seeks to develop a network of preeminent scholars who exemplify academic and personal excellence, foster environments of support and serve as examples of scholarship,
leadership, character, service and advocacy for students who have been traditionally underrepresented in the academy.

**IOE Ph.D. Candidate Marcial Lapp Selected as 2009 Bonder Fellow**

Marcial Lapp was selected as the 2009 Bonder Fellow. The one year Seth Bonder Fellowship is awarded on a competitive basis to a superior IOE graduate student who wishes to study and do research in the field of applied operations research.

**IOE Students Awarded Honorable Mention in the FAA Design Competition for Universities**

IOE undergraduate research assistants Kosta Kontoyiannakis, Eduardo Serrano, and Kevin Tse, in collaboration with doctoral student Marcial Lapp have been awarded Honorable Mention in the Federal Aviation Administration (FAA) Design Competition for Universities. In addition, their research on improving airport performance under periods of extreme disruption has just been conditionally accepted for peer-reviewed publication in the Winter Simulation conference proceedings.

The FAA created this competition to engage individual students or teams of students at U.S. universities working under the guidance of a faculty mentor to address airport operations and infrastructure issues and needs. Students were presented with a number of technical challenges relating to airport operations and maintenance, runway safety, airport environmental interactions, and airport management and planning. The technical challenges embraced many engineering and science disciplines and were often used as part of a capstone design course. The Competition requires students to reach out to airport operators and industry experts to advise them in their proposals and to help them assess the efficacy of their proposed designs/solutions. It provides a framework and incentives for quality educational experiences for college students and raises student awareness of airports as a vital and interesting area for engineering and technology careers.

**IOE Students Win First Place in IIE Lean Student Paper Competition**

David Hamilton, Inder Dhillon, and Brian Rumao have been awarded First Place in the Third IIE Lean Student Paper Competition for their paper, “Determining the Effectiveness of Specialized Bank Tellers.” The Lean Student Paper Competition recognizes outstanding papers in the field of lean research and practices.
David H. Gustafson 2009 IOE Alumni Merit Award Winner

David H. Gustafson (BSE IOE ’62, MSE IOE ’63, Ph.D. IOE ’66) received the 2009 IOE Alumni Merit Award. Dave delivered the traditional lunch time seminar to IOE students, faculty and alumni during the 2009 Alumni weekend.

Dave Gustafson is Research Professor of Industrial and Systems Engineering at the University of Wisconsin–Madison, Director of the National Cancer Institute designated Center of Excellence in Cancer Communications and Director of the NIATx, funded by the Robert Wood Johnson Foundation and the federal government’s Center for Substance Abuse Treatment. He is co-leading a Robert Wood Johnson Foundation national program (Advancing Recovery) to implement evidence-based practices in addiction treatment agencies and state governments.

Dave also leads several randomized trials including a NIDA trial to evaluate strategies for quality improvement. His research focuses on the use of systems engineering methods and models in individual and organizational change. His research on organizational change aims at developing and evaluating strategies for promoting and sustaining improvement in behavioral health care and involves nearly 1500 treatment agencies across the United States. His individual change research focuses on developing and evaluating eHealth systems using as the test vehicle CHESS (the Comprehensive Health Enhancement Support System), a computer system delivered through mobile technology to help people facing serious health problems, with a particular focus on cancer. His randomized trials of CHESS help understand acceptance, use, and impact of eHealth on quality of life, behavior change, and health services utilization.

Dave is a Fellow of the Association for Health Services Research and of the American Medical Informatics Association, a Fellow and past Vice–Chair of the Board of the Institute for Healthcare Improvement. He also chaired the Federal Science Panel on Interactive Communications in Health, is Chair of the eHealth Institute and has served as a member of several Institute of Medicine committees.

In his seminar Dave focused on how Industrial and Operations Engineering has contributed to health care, specifically in developing systems to help patients and families improve their competence, decision making and access to social support in dealing with life threatening diseases. He also discussed how IE has and will improve quality and efficiency in health care.

Dave emphasized lung and breast cancer, drug addiction and PTSD treatments.

Dave also discussed some changes likely to occur in Health Care and Policy and gave examples of how his research center is preparing to contribute. Tools addressed in the talk included organizational analysis, process improvement (sustainability and spread), new media and decision analysis. Dave’s talk demonstrated the importance of inter-disciplinary research and customer focus. As usual the seminar left plenty of room for discussion and Dave had a great conversation about all of these issues with the faculty, students and alumni in attendance.
Congratulations to our Recent Ph.D. Graduates!

Andres Guillermo Abad, Summer 2010, Modeling and Analysis of Process Complexity and Performance in Mixed Model Assembly System, Chair: Jionghua Jin

Ada Yetunde Barlatt, Summer 2009, Models and Algorithms for Workforce Allocation and Utilization, Chair: Amy Cohn

Oben Ceryan, Summer 2010, Optimal Production Control under Uncertainty with Revenue Management Considerations, Co-Chairs: Izak Duenyas and Yoram Koren


Casey Diekman, Summer 2010, Modeling and Analysis of Electrical Network Activity in Neuronal Systems, Co-Chairs: Daniel Barclay Forger and Vijayan N. Nair


Irina Sergeyevna Dolinskaya, Fall 2009, Optimal Path Finding in Direction, Location and Time Dependent Environments, Chair: Robert Smith


Joy O. Oguntebi, Fall 2009, Creating Effective Global Virtual Teams: A Transactive Memory Perspective, Chair: Jeffrey Liker

Betzabe Rodriguez, Winter 2010, Pricing and Assortment Selection with Demand Uncertainty, Co-Chairs: Goker Aydin and Amy Cohn

Esra Sisikoglu, Fall 2009, Distributed Algorithms Based on Fictitious Play for Near Optimal Sequential Decision Making, Co-Chairs: Marina Epelman and Robert Smith

Minsuk Suh, Summer 2010, Retail Pricing of Substitutable Products under Logit Demand, Co-Chairs: Goker Aydin and Mark Van Oyen

Warren Travis Sutton, Winter 2010, Network Migration Strategies: Evaluating Performance with Extensions of Data Envelopment Analysis, Chair: Lawrence Seiford

Tara L. Terry, Fall 2009, Robust Linear Optimization with Recourse: Solution Methods and Other Properties, Chair: Marina Epelman

Hui Wang, Summer 2010, Product Variety Induced Complexity and its Impact on Mixed-model Assembly Systems and Supply Chains, Co-Chairs: Jack Hu and Goker Aydin

Damon Phillip Williams, Fall 2009, Investigations into Flexible Operational Paradigms to Mitigate Variability, Chair: Mark Van Oyen

Zhibin Yang, Fall 2009, Supply Risks and Asymmetric Information, Co-Chairs: Goker Aydin and Volodymyr Babich

Jing Zhong, Winter 2009, Manufacturing System Variation Reduction Through Feed-Forward Control Considering Model Uncertainties, Co-Chairs: Jionghua Jin and Jianjun Shi
Professor Hancock served as Associate Dean for Manufacturing Initiatives in the College of Engineering from 1984 to 1989. During this time, outreach activities in the College were greatly expanded. The Ford Motor Company funded an endowed Professorship and a number of student research and internship opportunities.

Professor Hancock was joined by Professor Jeffrey Liker in 1984. Their mutual interest in the Toyota Production System (Lean System) and in Six Sigma practices led to a high level of interaction with firms who were trying to learn the new systems. Off-campus courses, contracts, and consulting opportunities were the result. Professor Hancock says that his students were not only able to regurgitate these new systems, but to develop new process control techniques that were very effective. They became experts in stamping and auto body formation systems, the primary areas where the Japanese excelled.

Professor Hancock graduated his 35th Ph.D. student before retiring in 1996. He presently is involved in a new company startup, “Lean Care Systems,” with four colleagues. They believe that typical hospitals can reduce their budgets by 30% and are trying to convince hospitals to change the way they do things.

Seth Bonder

Seth Bonder never intended to join academia. Following five plus years as a pilot in the USAF, three and a half years getting a B.S. in Mechanical Engineering from the University of Maryland, and five years getting a Ph.D. at Ohio State University; he planned to work in industry to make some real money. He turned down offers from several universities and interviewed with a number of business firms. Prior to traveling to Detroit to interview with Chrysler Corporation, he was called by Professor Hancock, then the Department Chair, and asked to give a seminar at the IOE Department. During the seminar, he found the interactions with Professors Thrall, Galliher, Disney, and others so intellectually stimulating that on the way back to the airport, Hancock offered and he accepted a faculty position in the Department. He joined the faculty in the summer of 1965.

Not having taught before, Professor Bonder spent the summer of 1965 preparing course materials for a new sophomore level math programming course (IOE 310) and material to teach the inventory control course (IOE 441). In subsequent years Professor Bonder developed the sequence of decision analysis courses 460 and 560.

In 1966 Professor Bonder founded the Defense Systems Laboratory (DSL) in the Department to continue his research in modeling the operations of large scale systems. The DSL received multi-million dollar funding from various defense agencies and research organizations. To assist with the research, the DSL employed a number of Department faculty (e.g., Ralph Disney, Herb Galliher, Bob Thrall, Steve Kimbleton) and supported a large number of Ph.D. and masters level candidates (e.g., Stan Sternberg,
Carl Hess, Peter Cherry, Amed Aswad, George Miller, Ron Kronz, Mike Moore, Thom Hodgson, David Thompson). Bob Farrell was a full-time Research Associate in the Lab. A number of the students developed their dissertations and theses as part of their research guided by Professor Bonder in the DSL. Using the results from both his OSU and UM research programs, in 1967 Bonder developed and ran a UM continuing education course titled “Topics in Military Operations Research” for practicing analysts in industry and government (including military officers). Approximately 100 students attended the course, which was offered for a number of years in the UM continuing education program.

After a couple of years on the faculty, and many lunches with Professors Disney and Wilson at the Brown Jug, Professor Bonder believed that the Operations Research graduate program in the IOE Department (and probably many other IE departments) was not well-suited to prepare students for careers as practicing analysts. A significant part of the deficiency was the fact that students are taught a family of OR models (e.g., queueing, scheduling, inventory, etc.) but not the “art of modeling” operations processes in large-scale systems. He felt the Department needed courses devoted to the modeling activity to provide a student with initial experiences in (1) identifying and converting a real world problem into an analytic one, (2) the process of making reasonable assumptions for developing and then building a process model that could be used to address the problem, (3) assessing the feasibility of obtaining data for model use and validation; and (4) using the model to address the real world problem. In 1968, he developed and taught the IOE 580 course to provide students with these initial experiences. (The deficiencies and means of teaching this type of course were described in a 1973 seminal article Professor Bonder published in the journal *Operations Research.* A course of this type was referred to as the “modeling studio” when it was later taught by Professor Pollock and offered in a number of OR related departments in the U.S. Students working in the DSL were continually provided with these experiences.

By 1969, in addition to spending 50 percent of his time directing the DSL, Professor Bonder was teaching the 310, 460, 560, and 580 courses; running the continuing education short course; guiding a number of Ph.D. and masters level students; actively participating in professional activities; and consulting 4-6 days per month with industrial clients. Given this work load, he encouraged Professor Hancock to hire Steve Pollock, who was then a professor in the OR department at the Naval Postgraduate School, and who could immediately step in and help with the teaching load. Pollock joined the faculty in 1969.

In the summer of 1969, Professor Bonder started a company, Vector Research, Inc. (VRI), to conduct studies for the Department of Defense during the Vietnam War. Professor Bonder “moonlighted” with the company until 1972 at which time he left the University to work full time with it. A number of students from the DSL joined VRI soon after they graduated and some were long-term employees. Under his leadership as Chairman and CEO, VRI grew to become the premier quality analysis organization supporting the DOD and U.S. defense industry in addressing a broad spectrum of tactical level and strategic policy issues. VRI also developed a comparable line of business supporting health care delivery enterprises. Toward the end of the 20th century, VRI had grown internally to around 450 professionals. Due to health reasons, Professor Bonder sold the company in 1999 to a not-for-profit organization, which after the sale became the Altarum Institute. Professor Bonder has kept his ties with the IOE Department as an Adjunct Professor since 1972, periodically teaching courses, presenting the inaugural Steffy Lecture, and through a VRI internship program with the Department while he was running VRI.

Throughout his career at U of M and with VRI, Professor Bonder has been heavily involved with OR professional organizations. He was the President of the Operations Research Society of America (now INFORMS) and President of the Military OR Society. He has received numerous awards from professional societies and from government organizations. He is a member of the National Academy of Engineering (NAE).

Fortunately Professor Bonder’s health has improved and he is living

![Professor Seth Bonder](image-url)
a full life. He refers to the time after 2001 as his “age of freedom.” He divides his professional activities equally between paid consulting work and pro bono activities for the NAE, Institute of Medicine, and the Army Science Board. Professor Bonder has graciously endowed OR graduate scholarships at the UM and OSU, two Ph.D. fellowships at INFORMS, and two scholarships at Washtenaw Community College. He has also endowed cancer research funds at the UM Comprehensive Cancer Center and at Saint Joseph Mercy Oncology Research Center in Ann Arbor. Finally he is learning how to play golf in his spare time.

Stay tuned in our next newsletter for the continuation of this article featuring Don Chaffin, Stephen Pollock and Katta Murty.

Outreach & Continuing Education

Ergonomics, Safety & Health
The IOE Department’s Center for Ergonomics has an active outreach program in the area of ergonomics and occupational safety and health. The Center for Occupational Health and Safety (COHSE) offers a variety of courses for practitioners in industrial health and safety. The center also offers free ergonomics training and service for small and medium sized Michigan companies and complimentary online occupational health and safety seminars. IOE faculty involved with COHSE include Thomas Armstrong, Barry Kantowitz, Monroe Keyserling, Yili Liu, Nadine Sarter and Bernard Martin as well as IOE staff members Randall Rabourn and Sheryl Ulin. More information can be found at: http://sitemaker.umich.edu/cohse/home

Process Excellence and Lean Tools
Michigan Interdisciplinary and Professional Engineering (InterPro) develops and delivers programs which enable engineers, managers and technical professionals to be more effective, productive and competitive. IOE Professors Pat Hammett (Six Sigma, Design for Six Sigma, and Lean Six Sigma) and Yavuz Bozer (Lean Manufacturing and Lean Logistics) are actively engaged in current programs at the Center for Professional Development. Professor Gary Herrin also serves as codirector of the Center’s Six Sigma Green Belt program. Lean Certifications from the InterPro program help students in the program to improve efficiency as well as reduce waste and streamline processes. More information can be found at: http://interpro.engin.umich.edu/

Lean Product Development and Lean Software Development
IOE Professor Jeffrey Liker works with companies worldwide through his private consulting company Optiprise. Joining him are IOE Ph.D. graduates John Drogosz and Robert Kucner. Most of their work is lean product development and lean software development. Using methods learned from Toyota the focus is on integrating people, processes, and technology. Lead time reductions of 30 percent or more are common along with better integration between products and processes resulting in fewer problems in production and higher quality. Clients include Caterpillar, Alcatel-Lucent, Schlumberger, Bombardier, PSA, and Tenneco Automotive. This work includes value stream mapping workshops, rapid-improvement workshops, set-based design, leadership coaching, lean coach training, and short courses.
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Alumni and Student Connections

In Fall 2009 the student officers of the IOE INFORMS group met several times by phone with officers from the IOE Alumni society including Matt Stich and Rob Holt. The group spoke about how current IOE students and IOE alumni could help one another and work together.

Both students and alumni have expressed a desire for more contact with one another and these meetings were an exciting first step. The students and alumni involved realized they could help one another in a variety of ways.

As a result of these meetings, INFORMS worked with IOE alum Matt Stitch to arrange an event for students which included an overview of jobs at Toyota and Toyota’s suppliers. The students also had a chance to take part in mock interviews done by Toyota HR staff. This event gave IOE students an idea of the variety of jobs available to them at one company and also gave them a chance to experience the type of interview they are likely to encounter when job hunting.

The students and alumni involved have discussed many possible future events and collaborations. They hope this is just the beginning of more contact between IOE alumni and students.