Cover Story
The Magic Maker of Monterey

IE Names New Head of School
Introducing Abhijit Deshmukh

In My View
Solving problems with Innovation and Style
On My Mind

This issue of Industrial Engineering Impact magazine showcases the creativity of our alumni and the IE discipline in general.

In meeting with many Purdue IE alumni over the last couple of years, I have been thoroughly impressed with the creativity that they bring to a wide breadth of activities and careers.

As change accelerates in our economy and society at large, this creativity is essential to evolving industrial engineering, imagining a better world, and realizing innovation in practice.

Purdue IE is also undergoing many changes. I am happy to report that we have added Agostino Capponi to our faculty as an assistant professor, that Barrett Caldwell and Mark Lehto have been promoted to full professor, and that Abhijit (Abhi) Deshmukh will take over as head of Purdue IE in January 2011. We introduce Professor Deshmukh in an article on page 2, though many of you may already know him; he earned a doctorate in 1993 from our school.

In returning to West Lafayette, Abhi brings an enormous amount of creativity, energy, and experience to Purdue IE. His addition to the faculty and leadership of the school will define the next era of excellence for Purdue IE.

As I approach the end of my interim leadership of Purdue IE, I feel privileged to have gotten to know the school and its alumni so well. I am confident that the future of Purdue IE is very bright and that its creativity will be pivotal in catalyzing solutions to many 21st century challenges.

Joseph F. Pekny
Interim Head
M4 Sciences receives national recognition

The TriboMAM, created by IE research engineer James Mann and his M4 Sciences company, has been selected by an independent judging panel and editors of R&D Magazine as a recipient of a 2010 R&D 100 Award. The award recognizes the 100 most technologically significant products introduced into the marketplace over the last year. M4 Sciences develops advanced technology for ultra-precision machining. The TriboMAM is the first compact CNC lathe attachment that enables Modulation-Assisted Machining for drilling of precision micro-scale holes.
Barany scholarship campaign surpasses goal

More than $1 million has been raised to endow an industrial engineering scholarship named for Professor Jim Barany, who retired in May after 52 years at the University.

“Raising the money to endow a scholarship in Jim’s name was not a difficult task. Both his colleagues and former students know the dedication and passion he has brought to our school over his long career,” says Joseph Pekny, interim head of the School of Industrial Engineering.

Barany was known for making himself available to students and spending countless hours helping them succeed. He was active with student organizations throughout his career, serving as faculty advisor for the student chapter of the Institute of Industrial Engineers since 1972 and as faculty fellow at Tarkington Hall since 1975.

Nadler honored with lifetime achievement award

Gerald Nadler (MSIE ’46, PhD ’49, DEA ’75), professor emeritus of industrial and systems engineering at the University of Southern California, received the USC Faculty Lifetime Achievement award in April. Nadler is recognized as a worldwide leader in industrial and systems engineering who has made key contributions in multidisciplinary system planning and design methodologies, and in the teaching of technological literacy to non-engineering students.

Financial engineer joins faculty

Agostino Capponi has joined the IE faculty as an assistant professor.

He received his master’s (2006) and doctoral (2009) degrees in computer science from the California Institute of Technology. The methodological aspects of his research include stochastic filtering and Recursive Bayesian estimation. The main applications of his research have been in financial engineering and target tracking.

Prior to joining Purdue, he worked for Goldman Sachs in the Finance Division. He holds a world patent dealing with state estimation in multi-sensor multi-target systems.

Faculty promotions

Mark Lehto and Barrett Caldwell were promoted to professor by the Purdue Board of Trustees in April.

Yih’s double life: professor, dancer

Yuehwern Yih (center), head coach of the Latin and Ballroom Dance Club and professor of industrial engineering, talks to the dancers during a rehearsal in May for ABC’s “Dancing with the Stars” collegiate competition. The eight-member group placed second behind Utah Valley University. Yih and her husband, Daniel Dilley, are competitive ballroom dancers in their own right. To read more about them, turn to the fall 2010 issue of Engineering Impact.

(Photo by Andrew Hancock)
As an industrial engineer, Abhijit Deshmukh studies complex systems. As the new head of the School of Industrial Engineering, he will manage one.

Deshmukh, who is a professor of industrial and systems manufacturing at Texas A&M, is no stranger to Purdue. He received a doctorate from the school in 1993, working with professors Moshe Barash and Joe Talavage.

He recalls meetings with Barash over coffee in Pappy’s Sweet Shop, where the two talked through the idea of complexity: “What makes one system more complex than the other? What is the science behind it? How do you measure it? What are the mathematical constructs?”

He credits his advisors with having helped him mature from a student to a researcher.

“Moshe encouraged his students to ask the right questions,” Deshmukh says. “He gave us the respect as a colleague. He wanted us to think independently and look at things differently.”

In January, when he assumes leadership of the School of Industrial Engineering, Deshmukh will have a chance to return the favor.

“I’m truly honored to be given this opportunity to come back and join the team and work with the talented faculty, staff, students and administration in moving to the next level and asserting Purdue IE’s leadership role in the industrial engineering field,” he says.

Industrial engineering as a discipline and profession is about to hit its zenith, Deshmukh believes. He refers to the ties between engineering and societal development: Sputnik led to a focus on mechanical and aerospace engineering. The oil embargo and energy crisis of the ‘70s put chemical engineering on the map. The last few decades have engendered nano and bioengineering. Looming on the horizon, he hypothesizes, is the age of integration and the age of IE.

“IE is the key discipline that has the tools to develop the science of integration that can help us build systems that are complex but manageable,” he says. “IE is a linchpin to a lot of the problems we are looking at and could provide the key element to solving big societal issues … when you look at infrastructure or climate change, these are highly correlated, integrated problems. It’s a fascinating time for IE.”

Deshmukh believes that Purdue IE can play a major leadership role in redefining the discipline. The school, he says, is ready to lead with a dynamic strategic plan and its vision of evolution of IE frontiers.

“We are at the beginning of an enormous opportunity for the profession,” he says. “Most engineers recognize that the systemic challenges out there are key, and the discipline that helps understand those and provide tools to help answer them is going to be at the heart of the next decade — IE.”

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Scott Givens used to play with Legos, constructing intricate fantasylands. His building blocks are much more spectacular now — 7,000 live performers, tons of explosives, international rock stars, the world’s biggest stages — and his fantasylands are the stuff of worldwide television broadcasts.
Givens (BSIE ’88) is founder and president of FiveCurrents, a creative and production firm that creates stadium spectacles. Its portfolio includes the opening and closing ceremonies for the Salt Lake 2002 Olympic Winter Games; Disneyland’s 50th anniversary celebration; Singapore’s 25th anniversary and Rio de Janeiro’s winning 2016 Olympic bid. His firm was recently appointed to create the ceremonies of the London 2012 Olympic Games.

The job requires Givens to blend the efficiency and logic of an industrial engineering education with a lively creative mind as he works to pull off events of mind-boggling proportion.

“I have never really been good with ‘that’s acceptable,’” Givens says. His events are much more: over-the-top, breathtaking. His goal? To leave a deep and lasting impression on those who witness the show.

Hired to help the city of Rio de Janeiro land the 2016 summer Olympics — which it did — Givens and his team produced the International Olympic Committee Evaluation Commission’s four-day site visit. The menu of events included more than 20 presentations; a tour of existing and proposed venue sites; and a dinner that included a costumed samba school of 500, a chorinho band, a performance by a bossa nova artist, and a beach aglow with hundreds of performers dressed in white and an illuminated “Rio 2016.”

Givens was also managing director of ceremonies and creative at the Salt Lake 2002 Olympic Winter Games, which meant he was responsible for the opening and closing ceremonies of the Salt Lake games, watched by a TV audience of more than 2 billion people. This included design and programming of the Olympic Medals Plaza and details ranging from the color palette and branding to design of the Olympic cauldron, built in glass to reflect the games’ theme, “Light the fire within.” For his work on the Salt Lake Games, the International Olympic Committee (IOC) awarded Givens the prestigious Olympic Order.

Givens continued as a consultant to the IOC and helped oversee creative and ceremonies in Athens 2004 and Torino 2006. He also wrote the IOC manual on ceremonies and served as a judge during the selection of the emblems for Beijing 2008, Vancouver 2010 and Rio 2016.

An early start

Givens began honing his organizational and trail-blazing leadership skills early in life, first as class president at Westville High School in Muncie, Indiana, and then as the student representative to the Purdue Board of Trustees. (He returned to Purdue to share his experiences in the 2003 Old Masters program.) It was a sideline activity, though, that started his creative career.
In an attempt to pep up Purdue football games — the team’s record wasn’t so strong in the mid-’80s — he founded a student organization in the fall of 1984 to perform card stunts in Ross-Ade Stadium.

The group, dubbed Block P after the letter it spelled out, drew 600 students who sat just above the marching band and held up cards to create messages and images. Givens, then a sophomore, planned out the designs using software he wrote for first-generation Macintosh computers that translated images into a seating diagram.

The card stunts drew the attention of Melvin Simon and Associates, shopping mall developer and owner of the Indianapolis Pacers basketball team. The company asked him to design card stunts for the NBA All-Star Game held that winter in Indianapolis.

The next summer, Givens was invited to intern with Simon and Associates; he remained with the company through college, working primarily on shopping center openings. He continued his card stunts as a hobby business, Stadium Stunts, which focused on large-scale audience stunts and human formations.

Around this time, Givens also worked on the Pan American Games, held in Indianapolis in summer 1987. In an interesting foreshadowing of his future, the opening ceremonies for those games were produced by the Walt Disney Company and featured 6,500 performers in the Indianapolis Motor Speedway. Twenty years later, after working for Disney, Givens and his own production company would serve as executive producer of the 2007 Pan American Games in Rio de Janeiro.

Crossroads: Airline efficiency or shopping mall development?

With graduation from Purdue came a significant choice: accept a job as an industrial engineer doing efficiency in flight scheduling for TWA or work for Melvin Simon and Associates as marketing director of a small shopping center the company was opening in California? He moved to San Jose.

“I was drawn to the creative side,” Givens says of his career choice. “I’m very balanced in left and right brain. I have never pitched an idea that I didn’t know how to create or functionally get it there. For me, the right brain drives the project. We can be wildly creative, deconstruct the walls of the box and really roam, but the left brain really anchors it.”

Above: Scott Givens began his journey to master entertainer as a student in the 1980s creating and directing Block P card stunts during football games.

Previous page: The opening spectacular for the 2007 Rio Pan American Games in Brazil. (All photos courtesy of FiveCurrents)

Scott Givens: “I have been fortunate in my career to work on the biggest of the big. The events take phenomenal organization.”

> continued on next page
Givens pursued this left brain/right brain balance in business school at the University of Southern California. Not content to take a standard route, he crafted his own program, which straddled the business and entertainment schools. The result was a degree in business with a certificate from the cinema school that combined entertainment, sport, film and TV elements. The program still exists.

In 2003, Givens joined Disney as vice president of entertainment. His dream job had come true. “I remember in college friends asked me what my ideal job would be. It was vice president of entertainment at Disneyland. Running a huge division, being creative. The fact that I got to do it at a milestone time in the company’s history is extraordinary,” he says.

Among his responsibilities was oversight of Disneyland’s 50th anniversary celebration. The park produced 75,000 shows and events during the year, with 2,700 people on the entertainment team. “It was a massive infrastructure,” Givens says. “We harnessed all the talent and broke it into discrete tasks.”

In 2005, Givens broke off to form FiveCurrents in Monterey, California. The company uses a variety of media to produce events ranging from the Clinton Global Initiative, an annual event in which world leaders from a variety of sectors come together to devise practical solutions.
to global challenges, to live sites for the Vancouver 2010 Olympic Games, to production of the London 2012 Olympic ceremonies.

Work, no matter the subject, is play for Givens, who is accompanied to work daily by his two Newfoundlands — Captain Nemo and Professor Arronax. The dogs take their names from one of Givens’ (predictable) favorites, the Jules Vernes’ fantasy “Twenty Thousand Leagues Under the Sea.”

“I am fascinated by the stuff that we do every day,” he says. “I don’t know if it’s going to get any better than this. I’m in the business of play, so every day is a blast.”

As Rio de Janeiro competed to host the 2016 Olympic Summer Games, it looked to Five Currents to suitably impress the International Olympic Committee Evaluation Commission. Entertainment during the commission’s visit included more than 20 events and a beach bedecked with the Olympic rings. Rio won the bid.

“For me, the **right brain** drives the project. We can be **wildly creative**, deconstruct the walls of the box and **really roam**, but the left brain really **anchors it**.”

To view website: [http://www.fivecurrents.com](http://www.fivecurrents.com)
Richard Liu Looks Ahead

Supply chain pioneer has eye on global horizons

One after another, C. Richard Liu has achieved advancements and reaped accolades for pioneering work in industrial engineering, from manufacturing methods to breakthrough product designs. Now, the professor and associate head of industrial engineering’s graduate program at Purdue is marking similar successes in graduate study improvements and about-to-debut graduate programs.

His many accomplishments include the patented Single Step Superfinish Hard Machining manufacturing method. “It’s been adopted by leading manufacturers,” he says. “This method reduces processing time, increases product life and improves manufacturing efficiency and quality for bearings, gears and structural components used in jet engines, aircraft, automobiles and ships.”

In 1980, he proposed a competitive strategy, separating design and manufacturing businesses in vertically integrated companies.

“This allows component manufacturers to focus on fewer varieties and gain economies of scale,” Liu says. Now known as supply-chain-based manufacturing, it was first used by personal computer manufacturers in Taiwan and later by Boeing, Ford, General Motors, Hewlett-Packard, Dell, Delphi Automotive, Whirlpool, Cummins Engine Co. Inc., Caterpillar and others.

“This structural change in manufacturing has been a game changer and led to a new area of research called supply-chain management,” Liu says.

His research also led to the development of a new design for Whirlpool Corp. automatic washers, a dominant product the last 25 years. “Another more advanced new design proposed at that time has recently come to market,” he says.

For his innovations, Liu received the prestigious William T. Ennor Manufacturing Technology Award from the American Society of Mechanical Engineers in 2008. One of the highest awards in the field, it salutes the intellectual, economic and social contributions of Liu’s work.

As for enhancements to the industrial engineering graduate program, he has helped strengthen the PhD program, increase student funding and increase program productivity.

A graduate of National Cheng Kung University, Liu earned a master’s at the University of Cincinnati and doctorate at Purdue. He joined Purdue’s faculty in 1978.

To better prepare IE students to become future leaders, he’s now developing several new programs, including an undergraduate global exchange program that took him to China this summer.

“I was identifying opportunities for students to spend a semester in China,” he says. “It will be more than technical. They will learn about the culture, market, economics, politics and society.”

Other plans include a hybrid distance learning program, global BSIE/MBA and MSIE/MBA dual degrees, and a global leaders program for master’s students that would include an internship at a global company.

All of the programs bring in cross-cultural experiences to complement industrial engineering, a reflection of Liu’s own life and desire to give Purdue students similar opportunities. 

Kathy Mayer
I’ve always resonated with engineers and the logical way in which we approach situations and solve problems. But over the years, I acquired a real appreciation for art and find that the things that are most interesting to me, the things that really stand out, combine both.

At the core level, blending art with engineering takes something highly functional and adds an aesthetic component to it, making it pleasurable to the senses. When you look closer, you find that the most intriguing examples of art and engineering engage both sides of your brain. The combination invites you to blend curves with angles, mix materials and juxtapose textures, often expanding accepted norms and boundaries, and creating an inspiring result that enlightens and entertains.

Some of the oldest examples of the frisson and grandeur that can happen when combining art and engineering are found in architecture, such as the Pyramids of Egypt, the Roman aqueducts, and the Great Wall of China. Newer structures include the Golden Gate Bridge, the Sydney Opera House and the Beijing Bird’s Nest stadium. Three modern architects dominate this category: Frank Gehry (Disney Concert Hall in Los Angeles; Guggenheim Museum in Bilbao, Spain), Santiago Calatrava (City of Arts and Sciences and Opera House in Valencia, Spain; Milwaukee Art Museum), and Zaha Hadid (Hungerburgbahn hybrid funicular railway in Innsbruck, Austria; Bridge Pavilion in Zaragoza, Spain). Their stunning buildings, bridges and transportation possess that Wow! factor, repeatedly.

Sculpture, while generally weighted more on form than function, yields examples where engineering was essential to realize the artistic design. Like architecture, large-scale sculptures, such as the Eiffel Tower and the Gateway Arch in St. Louis, have come to define an entire city. Medium-scale sculptures, such as those by Archie Held or Alexander Calder, may adorn corporate headquarters, marquis hotels, public sculpture gardens or private homes. The mixture of materials and textures, and integration of water and movement, set these examples off in a category all their own.

Notable illustrations of the impact of art and architecture are also present in consumer products, where great ergonomic design is combined with superior (mechanical) performance. Alessi is the quintessential kitchen gadgets and home accessories example. Cars dominate this category, from the affordable Porsche, BMW, and Lexus, to the extravagant Aston Martin, Lotus, Lamborghini and Bugatti. It’s the combination of visual beauty with high quality and performance that invites us to play and entices us (to spend large sums of money)!

Our generation has added its own twist to the intersection of art and engineering with contributions in the digital realm of software engineering design and graphical user interfaces (GUI). Animation has undergone a complete transformation from hand-drawn cells (art only) to CGI (art and engineering). “Avatar” has taken it to a whole new level, not only in the end product but also with the development of new tools (3D camera) needed to advance it. Apple produced the Macintosh, which many of us may remember was the first GUI. I would propose that the Mac changed the way that right brain people interact with computers. But the iPod, iPhone, and now iPad have changed the way everyone interacts with information. I believe the iPad will profoundly change the field of education (especially of your youngest generation) and may therefore alter our future.

Blending art with engineering — solving problems with innovation and style — gives us a new way of seeing, perceiving and interacting with our world, and has an indelible effect on our senses.

Debra Hockemeyer (BSIE ’86) pursued engineering as a major and developed an interest in art along the way. She owns Western Ridge Consulting in Los Angeles, which manages large, complex technology projects for Fortune 100 companies. Previous positions include IT director for DreamWorks and Universal Music Group, as well as various sales and marketing positions with IBM.
David Rozovski is a man on a mission — to get on a NASA mission. He would like nothing more than to be selected as an astronaut. But if that doesn’t come through, he’ll settle for anything having to do with aviation.

Rozovski, a doctoral student in industrial engineering, is focused on aviation human factors, studying how power is controlled in an aircraft with the goal of eliminating pilot error. His goal is to work in flight deck design as a test pilot and engineer. And, yes, he does plan to apply to the astronaut corps.

An intensely driven spirit, he may just have the right stuff.

By the time he arrived at Purdue in the fall of 2008, Rozovski had already completed several NASA internships and had applied for a patent for a novel power system for tiltrotor aircraft. He’s also a licensed plane and helicopter pilot who, in his free time, flies from Purdue to spots like Cleveland to clock hours. He vows that before completing his doctorate he will hold all pilot licenses through commercial multi-engine, which will enable him to be the pilot testing his own research.

In April, Rozovski was firmly on the ground in a flight deck of another sort, using his navigation skills to drive an electric go-kart for one of the IE entries in the University’s Electric Vehicle Grand Prix. The battery-powered karts, built by the teams, reached speeds of up to 45 mph as they hummed through the chicane and down the straight-aways.

The Electric Vehicle Grand Prix was conceived as part of a $6 million federal grant awarded to the University in August 2009 for creation of the Indiana Advanced Electric Vehicle Training and Education Consortium. The group is charged with educating and training the workforce needed to design, manufacture and maintain the electric vehicles of tomorrow. As an added benefit, it is also helped train an aviation engineer.

“My specific focus for getting involved in the race was to gain a better understanding of what is entailed in taking a brand-new vehicle and running it through its paces in order to validate the design and safety features so it can perform in a variety of environments,” Rozovski says. Not such a stretch from aviation design.

Aviation + Engineering + Psychology + Medicine

Born in New York City and raised in Chile, Rozovski attended public schools in Santiago through high school, and then returned to the United States for college with the goal of going to medical school. He enrolled at Linfield College in Oregon as a psychology major, and was on-course until junior year when his interests began to change.
Back home in Santiago for vacation, he tried to sort things out. On a whim, he did a keyword search using his four interests: aviation, engineering, psychology, and medicine. Result? Human factors.

He narrowed the field: human factors, rotors, NASA. Result? A sort of high-tech matchmaking — NASA’s Ames Research Center in San Jose, California. He contacted the center for more information and was directed to the University of Illinois and its master’s program in human factors. In the summer of 2006, he joined the NASA research center as an intern. His first assignment was to complete an algorithm that would allow helicopters to fly at low level without crashing. He declined to tell his supervisor that he wasn’t a math major and had no idea how to create an algorithm. Instead, he opted to read every book he could on the subject, and successfully completed the assignment.

“I didn’t want my supervisor to think I couldn’t do something,” he says. “It formed the work ethic I now use when I approach things.”

Rozovski’s second NASA internship came the next year. Then, after completing his master’s degree, he took a summer position with the Boeing 787 flight deck team.

Focus on flight deck safety

Rozovski’s doctoral research — a continuation of work begun at the University of Illinois — focuses on flight deck design and ways to eliminate pilot error. His advisor, Steve Landry, is a kindred spirit; a former military pilot, aspiring astronaut, and specialist in human factors and aviation. It was Landry who drew Rozovski to Purdue.

During his master’s degree studies in Illinois, Rozovski designed — and is now in the patent application process for — a novel power control interface for tiltrotor aircraft. The military’s V-22 Osprey, in use in Afghanistan, is the best-known tiltrotor. Its engines can be rotated for either a helicopter-like vertical takeoff and landing or a fast forward speed like that of a turbo-prop. The aircraft could have commercial application in situations where runway space is tight and travel time is relatively short, as in delivery from small urban environments to major airport hubs, as NASA envisions it.

The challenge for tiltrotor pilots lies in the way the two different vehicles are controlled. If pilots use the control lever from one aircraft while in the other aircraft’s mode, it can cause a control reversal or error. In a control reversal, pilots know what they would like to do, but input the opposite action by mistake; this can be a fatal error. Rozovski’s Rotational Throttle Interface (RTI) mimics the angle position of engines, making control much more intuitive.

As Rozovski moves into the test phase of his lever system research, he is a man consumed. The intensity that has guided him through his studies and keeps him sharply focused is evident as he talks about his work, scrolls to photos of it on his cell phone, and discusses scheduling life around the machining of an integral part. This intensity may just land him on the moon.

“I hate quitting and don’t find anything to be impossible,” he says. “I want to find all the ways it can be done. I really get satisfaction out of completing a job.”

Strategically Creative
Brand strategist by day, chef by night

By day, Maurice Markey (BSIE ’89), leads strategic development and brand management for a multibillion-dollar portfolio of products, sometimes joking with his creative agency partners, “I’m really a creative person trapped inside this business body.”

At home, this vice president of private brands for Sam’s Club, a division of Wal-Mart Stores Inc., lets the creative juices flow in the kitchen, where he’s known for his mushroom-covered beef tenderloin, crab cakes and crab-stuffed flounder. He learned the art from his mother, who was an Indianapolis caterer.

“During the summers, working parties and weddings helped me pay for college,” says Markey, one of eight children. “Now, I like having friends over and trying new things. I do it for the joy of those I’m cooking for.”

His mom was one of many good teachers. “I was a kid that had some aptitude academically, and my counselors and teachers guided me,” he says.

During high school, a Purdue minority engineering summer program planted the seed for engineering in Boilermaker country. “I felt industrial engineering would afford me an opportunity to be a little broader, and that would ultimately benefit me,” he says.

“For me, it was the right platform. Engineering gave me a solid foundation on how to think systematically, analyze data, extract information that is important and discard what isn’t.”

(Maurice Markey: “Engineering gave me a solid foundation on how to think systematically, analyze data, extract information that is important and discard what isn’t.”
(Courtesy photo)

situation, and ultimately solve it. That training has applicability no matter what you do.”

With his IE degree and then an MBA from Indiana University, Markey initially headed to Goodyear Tire and Rubber Co.’s engineering and manufacturing operations; and after Indiana, to Kraft Foods for nearly 15 years, last serving as vice president of marketing. He took his Sam’s Club post in January 2009.

As a leader, he says, “I articulate a clear vision and provide motivation to accomplish that vision.” Communicating effectively is paramount, as is hard work. “I’m passionate, solution-oriented, and open to ideas, ideas, ideas — that came from my Purdue training.”

Where life takes him — Ohio, Chicago, Asia, now Arkansas — this father of three, who met his wife, Tamara, at Purdue, makes time for other children, too. In Cambodia, he volunteered at an orphanage; in Chicago, he mentored in the Chicago Public Schools. In Arkansas, he’s mentoring third-grade boys in an enrichment program.

“I just love kids,” Markey says. “I love the intersection of youth and education.”

Crab Cakes Markey

1 can of jumbo lump crabmeat (must be lump)
1 egg
1 cup of bread crumbs
1/2 tsp. sea salt
1/2 tsp. pepper
1/2 tsp. dry mustard

Drain crabmeat in a bowl and sprinkle generously with Old Bay seasoning.

In separate bowl, beat egg and combine sea salt, pepper, dry mustard, Old Bay Seasoning, Beaufonte Seasoning, Worcestershire Sauce, mayo and brown mustard.

Fold egg mixture into crabmeat, mix and add bread crumbs and mix. Set in refrigerator for an hour*. Remove from refrigerator and form crab cakes, sprinkle each side with bread crumbs. Place formed crab cakes back in refrigerator for 30 minutes*.

Cover bottom of large frying pan with vegetable oil. Place crab cakes in hot oil and fry a few minutes on each side until golden brown. Remove from pan, let drain and enjoy!

* Placing in the refrigerator helps crab cakes to form and maintain their shape.

To print recipe, go to http://engineering.purdue.edu/crabcakes.
Purdue IE positions school on leading edge of discipline

More than 200 years ago, technological innovations sparked the beginning of the Industrial Revolution in Great Britain, which spread quickly and fueled massive changes in the way society works and lives.

Today, the pace of change is greater than ever. Industrial engineers have been and will continue to be at the forefront of change, with a leadership role in designing, developing, applying and integrating industrial technologies. To maintain its leadership role in the 21st century, the industrial engineering profession must continue to evolve as a leader in developing new systems, capabilities and organization.

Purdue’s School of Industrial Engineering is committed to playing a leading role in shaping the IE discipline, and it explores the ways this can be done in a document titled “Evolution and Frontiers.” The document, authored by members of both Purdue IE’s faculty and its alumni advisory council, examines the evolution of the profession and identifies the key frontiers of the future.

IE’s leadership in the 21st century, the document states, will depend on collaboration across areas of specialization within the discipline. It will also require collaboration with partners beyond IE to create a greater whole for solving global grand challenges.

This topic was among those considered in April during the school’s inaugural Gavriel Salvendy International Symposium on Frontiers in Industrial Engineering. The biannual event, endowed by Professor Emeritus Gavriel Salvendy, showcases current and emerging topics within industrial engineering and related to disciplines.

The 2010 symposium, “Cultural Factors in Decision Making and Action,” included sessions devoted to managerial decision making, contemporary perspectives on decision making and culture, cross-cultural decision making and collaboration, decision making in health care, decision making in energy use, development and conservation, and decisions and risk taking. Presenters came from a variety of disciplines, including psychological sciences, medicine, and anthropology. ▪ L.T.T.
I am a maker.


I write poetically in an abundance of languages (including code). I hack. I dissect. I have an insatiable desire to un-complicate the complicated. I am easily inspired. I believe that just because it hasn't been thought of doesn't mean it won't be. Potential is my thrill ride. Imagination is my most-used tool.

I am a maker. And I am what moves the world forward.

We are Purdue. Makers, all.

purdue.edu/makers