



BSE Update

University of Wisconsin-Madison Biological Systems Engineering

We're Growing!

Currently there are 149 undergrads registered in our program. We typically averaged 140 per semester, the last 2 academic years.

Specialization	Undergrads
Food & Bioprocess	37
Machinery Systems	39
Structural Systems	8
Natural & Environmental	27
Undeclared	38

There are currently 16 Master's Degree students and 27 PhD students. Additionally, BSE Faculty supports 5 Master's Degree students and 2 PhD students not in the department. That is a total of 50 graduate students.

Chair-Chat from Richard Straub

This year has been very busy, but productive, for the Biological Systems Engineering Department with student numbers continuing to grow, new faculty hires, and continued productivity of our Research and Extension programs, all in 2012.

We are nearing 150 undergraduates in our department with expanding interests in our Natural Resource Engineering and our Food and Bioprocess options. Traditional areas, such as Machinery Systems, has experienced a period of outstanding demand for our graduates, but we are having more difficulty recruiting in this area. Your help in encouraging potential students to consider this, and all options areas would be appreciated.

We have added a new senior faculty, Dr. Christopher Choi, who joined us from the University of Arizona where he developed his research program in the area of application of computational fluid dynamics to biological systems engineering problems in agriculture or the environment. Additionally, we are finishing a search for a Machinery Systems

Chair Chat continued on middle of page 5.

"Like" BSE on Facebook!

Find us on Facebook at UW-Madison Department of Biological Systems Engineering to keep updated with the department on student, faculty, alumni, and campus news! Please stop by and post something to share with the Department. We'd love to hear from you!



www.facebook.comUWMadisonBSE

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Save the Date! BSE Spring Picnic, April 20, 2013.

BSE Alumni, Family & Friends are invited to join BSE Family for the First Annual Spring Picnic on April 20, 2013. The time and location will be announced soon, but please save this date for a day of fun in Madison. After the BSE Spring Picnic you may want to attend the UW Spring Football Game or UW Spring Band Concert. For those who may not be familiar with these events, the Spring Football Game allows fans to watch the Badgers play at Camp Randall Stadium and attend family-friendly events prior to the game. The UW Spring Band Concert has been held since 1975 and attracts 25,000 Badger fans to the Kohl Center. The concert comes complete with professional staging, lighting, sound, and pyrotechnics.

Come to the BSE Spring Picnic and stay for a full day of fun in Madison!

Student Updates

American Society of Agricultural and Biological Engineers WI Student Chapter

Update by 2012 President Alex Earhart

The ASABE UW-Madison student group has resumed its regular meeting schedule this fall after an eventful summer. During the 2012 summer, three undergraduates students; Alex Earhart, Alyx Selsmeyer, and Evan Price and a number of graduate students attended the ASABE Annual International Meeting (AIM) in Dallas, Texas, with support from the BSE Student Activities Fund. The ASABE AIM hosted the finalists for the undergraduate design competitions (ASABE AGCO National Student Design Competition, ASABE G. B. Gunlogson Student Environmental Design Competition, etc) and had a number of graduate speakers from UW-Madison present their research. The three undergraduate students received the Association of Equipment Manufacturers (AEM) Award for the AEM Report that was submitted by the club during the spring semester. This was a great accomplishment for the ASABE UW-Madison student branch. Many thanks go out to Bryan Rowntree and Alex Earhart who were responsible for compiling information on the student section activities and submitting the summarized AEM report.



ASABE Officers serve fellow BSE Students and Faculty at the Fall Mixer.

During their time at the Texas AIM, undergraduates were able to attend ASABE's Fountain Wars; a design competition that utilizes PVC pipe, couplers, fittings, valves, nozzles, and pumps to manipulate water to perform outlined tasks. The ASABE UW-Madison student section is currently looking to develop a team to enter the Fountain Wars competition in 2013.

The fall semester began with a bang, signified with the Biological Systems Engineering (BSE) Student/Staff Mixer, which was held at the Agricultural Engineering Laboratory.

With a growing department, the mixer had over 150 people in attendance. The taco bar was a huge success thanks to the help from the BSE social committee (and in particular Debby Sumwalt and Scott Sanford), the ASABE Student Officer Team, and Assistant Professor Rebecca Larson (ASABE UW-Madison Advisor) who served the food and introduced ASABE to the new and returning students of the BSE department (as seen in the photo).

Plans for the fall 2012 semester include a Breakfast at Babcock to network and meet other students studying under the College of Agricultural and Life Sciences (CALS), a tour of the Forest Products Lab, a corn maze, industry tours, the WI section meetings, and a number of other exciting social and educational events. Please come and join us on the second Wednesday of each month at 5:00pm to get involved with the American Society of Agricultural and Biological Engineers University of Wisconsin – Madison student branch.

We look forward to meeting you.

ASABE Officers of 2013

President - Nolan Lacy

Vice President - Shayne Havlovitz

Secretary - Meredith Remter

Treasurer - Jim Breckenridge

Polygon - Reid Christ

CALS - Andrew Meinerz

AEM - Brenna Stow

Public Relations - Ricky Bero

Engineering Expo - Nolan Lacy, Jim Breckenridge, Aaron Bohnhoff

Lawn Mower Clinic - Evan Price, Clay Selsmeyer, Trevor Meyer

Webmaster - Aaron Bohnhoff

"Working as an officer in ASABE has given me the opportunity to further develop my leadership skills by working with a great group of students who share similar career interests.."

- Shayne Havlovitz



Student Updates

BSE Scholarship Recipients

Albert J. and Adelaide E. Riker Academic
Merit Award

Michael Hatchell

Patrick Smet

Brian Straub

Babcock House Alumni Scholarship

Bryan Rowntree

Cargill Diversity Scholarship

Francisco Sayu

Dick J. and Grace B. Stith Scholarship Fund

Christofer Sindunata

Don S. Montgomery Scholarship

Bryan Rowntree

Dorothy Strong Scholarship

Lauren Saleh

Ervin W. Schroeder Biological Systems
Engineering Scholarship

Joanna O'brien

Gail Edwin and Janice Faye Janssen Biological
Systems Engineering Fund

Brenna Stow

Ham Bruhn Biological Systems
Engineering Scholarship

Xingtai Li

Brandon Nigon

Katherine Scharenbroch

Howard P. Gutgesell Agricultural Scholarships

Brian Straub

Lynndon and Norma Brooks Scholarship

Travis Schumacher

Memorial Fund of Bethel-Bethany United
Church of Christ

Alex Earhart

Peter Young Student Assistance Grant

George Heindl

Daryl Trainor

Roger W. Ambrose Scholarship

Alex Earhart

Roger Biddick Quest Scholarship

Thomas Larson

Russell J. Schuler Agribusiness Scholarship

Christopher Beedle

Ruth and Carl Miller Academic Merit Award

Cyru, Nigon

Vicky Lee Hirsh Endowment for
Conservation Scholarship

Joanna O'Brien

Brenna Stow

Vic Burcalow Scholarship

Christian Burnson

Walter H. Ebling Scholarship

Christian Burnson

William F. Renk Endowment for
Undergraduate Excellence

Ru Chen

Wisconsin Agricultural Engineer Scholarship

Shengzhi He

Wisconsin Biological Systems
Engineering Scholarship

Joseph Sanford

Wisconsin Rural Youth Scholarship

Brandon Nigon

The generosity of donors make these
scholarships possible, and BSE Students
truly appreciate the help that they
provide. Thank you, donors!

BSE Senior Design Projects Become Reality

John Panuska, Natural Resources Extension Specialist, BSE

One important rite of passage into the working world for BSE graduates is the senior design / capstone project, also known as BSE 509. The senior design project gives BSE seniors a chance to practice what they have learned on real world projects. So a BSE graduate may ask: whatever became of all that design work we spent so many late-night hours completing? Was it lost forever on a dusty shelf somewhere or perhaps placed in the circular floor file, regularly emptied by the custodial staff? Well, wonder no more, the answer is forthcoming for at least two projects.

The first case in point involves the solution to a surface water runoff problem at the University of Wisconsin's Agricultural Experiment Station at Arlington. A broad scope of research work is conducted at the Arlington Station, which includes organic production cropping systems. In order to be a certified organic system, fields including research plots, can't be impacted by surface runoff from areas where conventional pesticides or chemical fertilizers are used. The organic research and production standards also mandate that long term sustainability and sound conservation practices be implemented. In order to meet these standards, it was necessary to divert runoff from adjacent areas away from the organic research area and at the same time reduce soil loss from those areas to tolerable levels. During 2008-09, the BSE 509 student design team of Ryan Stenjem, Josh Gable, Lis Nimani and Tyler Hastings designed a system of water ways and terraces to address this need. The analysis included hydrologic and soil loss computer modeling as well as channel hydraulic design. The terrace/ waterway layout was completed using AutoCAD from which the field locations were exported and staked. In the spring of 2012, construction of the project was completed as shown on the right.



Waterway construction (above) and completed terrace (below) at the Arlington Agricultural Research Station designed by the 2008-09 BSE senior design class.



Wetland construction (above) and newly restored wetland (below) designed by the 2011-12 BSE senior design class.



A second engineering challenge undertaken by BSE seniors during Fall semester 2012 was a wetland restoration project. The Natural Resources Conservation Service's (NRCS) Wetland Reserve Program allows property owners to choose to restore wetland areas that were previously drained for farming. The BSE student design team of Lynn Singletary, Nick Dienes, Matt Pomerleau and Katlin Slimak worked closely with Scott Mueller, assistant state conservation engineer for NRCS on the design work necessary to restore the hydrologic conditions needed to support the newly restored wetland system. The project design included hydrologic modeling and hydraulic analysis. Construction required breaking existing tile lines and grading to create areas of varying water depth to support a diverse wetland ecosystem. The NRCS subsequently used the student design to construct the wetland as shown on the left.

Undergrad Research Update

Margaret Debrauske's Research in Denmark

Margaret Debrauske had the opportunity to do a research internship at the University of Copenhagen, Denmark under Dr. Per Møller. She worked with Dr. Møller, a psychophysicist who studies the neuropsychological phenomena regulating food sensation, reward, appetite and the interrelationships between these, and Ida Viemose Jespersen, as her student mentor. Her research, "Electrophysiological Investigations of Conditioning, Expectation, and Sensory Specific Satiety" was to study and understand the brain's response to image and flavor relationships after the subjects are trained to learn the association. The Sensory Specific Satiety analysis was to measure a person's 'satiation' to a flavor profile. Debrauske's research's abstract was reviewed by the Institute of Food Technologist- Undergraduate Research Competition and she became one of the finalists who competed at the IFT Food Expo in Las Vegas. Margaret Debrauske represented the University of Wisconsin and the University of Copenhagen as the 1st place winner of the competition.



Chair-Chat from Richard Straub (continued from page 1)

Extension faculty that will result in another new face next year.

Our Biological Systems Engineering students, staff and faculty have been the recipients of a number of awards detailed elsewhere in this newsletter, but I would like to highlight some of our alumni awardees. We successfully nominated Tom Gunkel, one of our Construction Administration grads, for recognition with the College of Engineering Distinguished Service award. Martin (Marty) Burkhardt received a College of Agricultural and Life Sciences Distinguished Alumni award, and Gail Janssen was posthumously honored with a WALSA 40 in 40 Impact Award. Congratulations to you all—we are very proud of you and all of our alumni's accomplishments!

Finally, and most importantly, I would like to thank all of our alumni and friends that have supported us over the past year with your gifts, service, and other support. It makes a great difference to our program, and to our students, and is sincerely appreciated.

I hope you all have a great holiday season and a prosperous year ahead. Be sure to try to join us for our spring event on April 20, 2013—it will be a great opportunity to catch up with friends and the Department!



Long Range Planning Retreat

On August 23rd, 2012 BSE Faculty and Staff met in an all-day retreat to consider and map the future direction of BSE. The planning session focused mainly on the department's research mission. A future meeting will be used to consider the teaching programs future. The department has grown recently with many new faculty members, so the planning meeting helped both new and senior faculty to carefully consider our path forward.

Faculty Update



*Chris Choi
joined the
faculty in the
Department
of Biological
Systems
Engineering
as a professor
this fall.*

New to the Department: Christopher Choi

Q: Tell us about your career path.

A: I received my PhD from Colorado State University in computational and experimental fluid dynamics and heat transfer. My dissertation was an investigation of the convective heat and mass transfer caused by volumetric energy generated by nuclear waste canisters stored underground. After obtaining my doctorate, I became an instructor and research associate at the University of Arizona. During that time, I focused on finding better ways to cool electronic components and taught courses in Fluid Mechanics, Thermodynamics, Intermediate Thermodynamics, Dynamics and Numerical Methods. I then joined the Department of Agricultural and Biosystems Engineering as an assistant professor, and my research interests since then have been in the area of transport phenomena as it applies to environmental, biological and agricultural engineering. My recent research activities have involved (1) water security and safety, (2) the optimal design of urban water distribution infrastructures, (3) microclimate control for dairy farms, (4) microclimate control in greenhouses, (5) the transport and fate of pathogens in fresh vegetables and fruits, and (6) the computer modeling of algae biofuel production in raceway ponds. Over the past decade, I have conducted multi-disciplinary research projects, working with researchers whose specialties included microbiology, animal sciences, public health, and civil engineering. I also maintained an independent research laboratory dedicated to creating computational simulations and conducting experiments in transport phenomena. During this period I also developed and taught Computer Aided Design for Engineers, Biosystems Thermal Engineering, and Advanced Biological Transport Phenomena.

Q: What is the main focus of your research program?

A: I will continue to focus on developing advanced computational models capable of accurately simulating the complex transport phenomena that concern engineers and scientists working to solve environmental, biological and agricultural engineering problems. I am also interested in large-scale systems optimization and advanced analytics.

Q: What drew you to UW-Madison?

A: The university's reputation as a first-class research and academic institution was the most significant factor affecting my decision to move to UW-Madison. I had also learned that the faculty and student body are first rate and that, as a result, the intellectual environment on campus would offer exciting new ideas and research opportunities. Since moving here, I have come to love Madison and the surrounding communities, and after living in the desert southwest for over two decades, I am looking forward to a yearly climate cycle that includes all four seasons.



John Deere Donation Recognized. On October 3rd, 2012, CALS Dean Kate VandenBosch and ASABE President and John Deere Manager of Continuous Improvement Tony Kajewski helped dedicate the recent donation of a John Deere model 6R tractor to BSE. Prof. Shinnars recently negotiated an annual loan of the tractor from John Deere, with a roll over of a new tractor each year. John Deere has also donated Precision Agriculture and CANBUS tools for this tractor to allow students access to collect and analyze tractor performance data to enhance lab experiences. We appreciate John Deere's generous support of BSE.

A round of applause for...

Dave Bohnhoff honored by American Society of Agricultural and Biological Engineers

Professor Dave Bohnhoff was presented with the Evelyn E. Rosentreter Standards Award at a recent meeting of the American Society of Agricultural and Biological Engineers. The award recognizes distinguished research

and standards development work in advancement of the design and construction of post-frame building systems, and for his outstanding accomplishments in teaching and service to the profession. In presenting the award,

ASABE noted that Bohnhoff has provided leadership in the development of engineering standards and their eventual adoption into the International Building Code. He has been a member of ASABE for 33 years.



Sanford and Thunker get Blue Ribbon Award for Greenhouse Energy Publication Series

Scott Sanford, Senior Outreach Specialist for the Rural Energy Program and author, and Abby Thunker, UW Extension publication's editor, were awarded an Educational Aids Blue Ribbon Award by ASABE for a five bulletin series of UW Extension fact sheets on Energy Efficiency in Greenhouses. The bulletins cover energy efficien-

cy measures and using biomass energy for heating greenhouses. The publications are entitled: "Reducing greenhouse energy consumption – An overview" (A3907-01), "Greenhouse unit heaters – Types, placement, & efficiency" (A3907-02), "Using curtains to reduce greenhouse heating and cooling costs" (A3907-03), "Biomass energy for

heating greenhouses" (A3907-04, and "Biomass heating in greenhouses – Case studies" (A3907-05). The bulletins can be found at the UW Extension publication website - <http://learningstore.uwex.edu/> under the heading of "Farming", then "Energy & Environment", and then "Energy". The bulletins can be downloaded for free as a PDF.



Professor Kevin Shinnars Receives Spitzer

Professor Kevin Shinnars was awarded the Spitzer Excellence in Teaching Award on April 25th. The annual award recognizes an individual who has advanced CALS teaching goals through outstanding teaching practices and learning beyond-the-classroom.

Prof. Shinnars was recognized for his passion for the subjects he teaches, the organization and management of his courses, and the manner in which he demonstrates how engineering fundamentals are used to solve real-world problems. He was also rec-

ognized for his achievements at upgrading the machinery systems lab experiences through many acquisitions of equipment that reflect the recent changes in equipment designs.

One of Prof. Shinnars' recent course evaluations succinctly summarized his teaching abilities: "Best class I have taken, hands down. He is a great lecturer, passionate about subject. He forced you to put in work to succeed, but it paid off well. Wish he taught all of my engineering classes!"



Professor Kevin Shinnars and CALS Dean Kate VandenBosch.

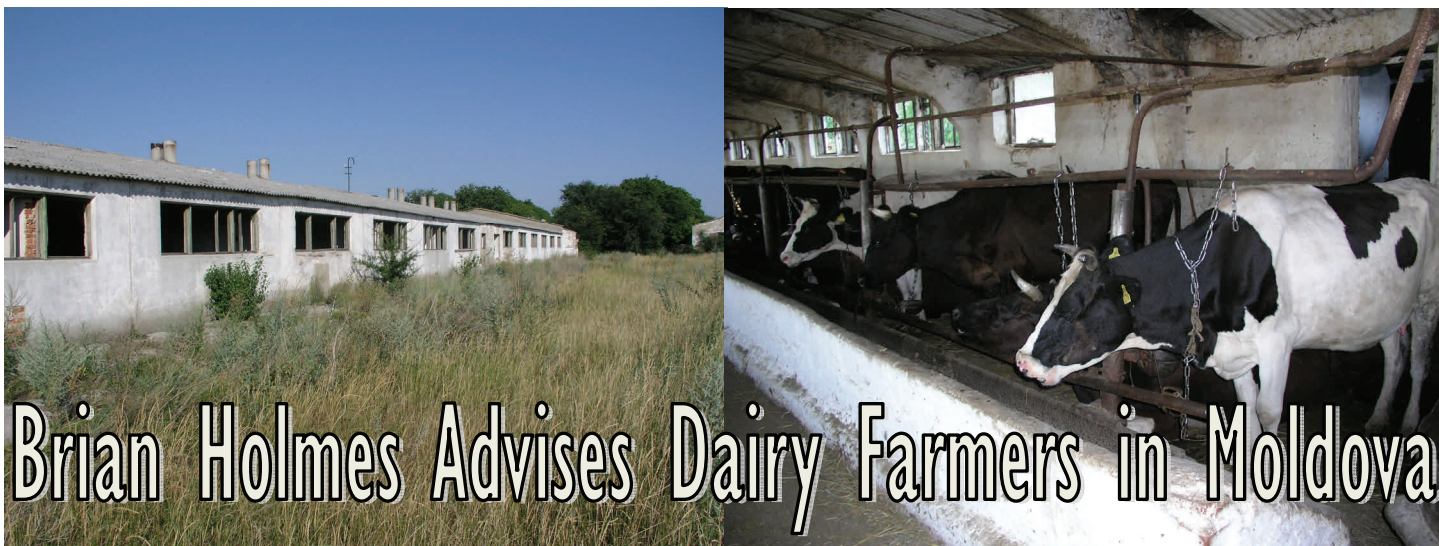


Figure 1. Typical Soviet style barn

Figure 2. Dairy cows in tie stalls in a former Soviet style barn.

Moldova is a small country located between Romania and Ukraine just north of the Black Sea. It gained its independence from the former Soviet Union in 1991. In the ensuing years, the former collective farms were disbanded and the resources assigned to people of the villages nearby. Some farm land was given to individuals of the village in very small parcels and the land and buildings of the collective farms were made available for sale. Animals of the collectives were given to individuals as well. Some land was reserved for common grazing lands. Because many people were not able to amass capital during the Soviet occupation, many of the factories and farm buildings of the country were not purchased or operated for years. In this environment, small (several cows per family) dairy operations have persisted. The cows are kept and milked in the village and are taken to pasture by a shepherd each day. The shepherd's job is a rotating responsibility amongst the owners of the cows. Shepherds are used because farm fields do not have fences to protect crops from grazing animals (sheep, cattle, goats etc.).

Gradually, capital has been flowing into the dairy industry and larger more confined feeding dairy farms are evolving. There is an interest in using freestall barns and milking parlors to house



and milk dairy cows. The former Soviet style barn (Figure 1.) was a tie stall barn housing about 100 cows and milking was with bucket milkers (Figure 2). If you wanted 200 cows you had two barns etc. Because they are still there, there is an interest in converting some of these older barns into freestall barns and possibly milking parlors. Freestall barns and parlors have the potential of significantly reducing labor requirements of feeding and milking small numbers of cows or using stall barn technology.

Because capital is very limited, producers desire to use existing buildings by remodeling them. This poses concerns about trying to fit recommended design features into fixed spaces as is always the case in a remodeling situation. A classic situation is to convince the dairy operator that the prefabricated concrete sidewall panels should be removed for good summer ventilation and to use curtains to close the sidewalls in winter. There is a strong belief that cold temperatures are detrimental to cows and they should be kept warm in winter.

Brian Holmes, Farmstead Engineering Extension Specialist, Biological Systems Engineering Department, University of Wisconsin-Madison, recently returned from an assignment to advise dairy farmers in Moldova about how to design and manage modern dairy facilities. The program, sponsored by CNFA, is intended to improve the lot of dairy farmers, to improve the local economy and to supply home grown foods to the populace. CNFA Inc. is a non-profit, non-partisan organization dedicated to stimulating economic growth in emerging and developing world markets. CNFA takes a multi-faceted approach to promoting agricultural development in developing countries by training farmers and members of organizations at a grass-roots level. CNFA's trainers are farmers and agribusiness professionals who bring their expertise to assist producers on their own farms. Brian Holmes visited four dairy farms during his fourteen day stay in Moldova. He had the opportunity to advise about improving building ventilation, milking parlor design, freestall barn arrangements, feed storage and manure management. Holmes says dairy producers who implement recommendations should expect to see improved animal performance, reduced labor costs, improved profits and improved environmental protection.

Faculty Update

The Rain, the Plow and the High Plains Sifter

The impacts of land use/land cover changes induced by the Renewable Fuels Standard get a closer look.

Does rain follow the plow? So it seems from a recent study examining the effects of biofuel feedstock production in the Midwest. New research by Professor Robert Anex and Ph.D. student Sami Khanal suggests that growing significant amounts of biofuel feedstock such as switchgrass (*Panicum virgatum*) in the High Plains of the United States could affect the regional climate and significantly and deleteriously affect the local climate where such cropping systems are placed.

Using regional climate simulations run with the Weather Research Forecast model coupled to the Noah land surface model, Anex, Khanal and colleagues of Iowa State University demonstrate that the anticipated large swaths of switchgrass that will be required to meet the Renewable Fuel Standard goals for cellulosic ethanol will pump large quantities of moisture into the air through transpiration as they grow, increasing rainfall downwind. As the grasses remove that water from the soil where they are grown, they reduce the local soil moisture, making already arid regions drier.

Anex and Khanal's analyses demonstrate that relative humidity increases as the rapidly growing biofuel feedstock plants draw moisture from the soil and transpire to survive. This moisture then moves through the atmosphere on the prevailing winds, drawing the rain away from the immediate area to more distant geographic areas. In the already moisture stressed High Plains, this can be a problem. The reduction in soil moisture ultimately produces less local streamflow affecting other water uses as well as the health of the riparian ecosystems around the streams and rivers.

"We predict that there will not be enough water in the High Plains to grow all of the biofuel feedstock that advocates hope will come from that region," says Anex. "The message is that plants can change the weather and we need to consider the impacts of weather if we are to develop effective sustainable policies that involve large changes to land use."

Alumni Update

Ross James: Olympic Rower

After graduation in 2010, I moved to Oklahoma City where I trained full time for the United States Rowing National Team. I was also lucky to have a part-time job working as an engineering consultant for a wind energy company called Next-Gen Wind. It was a terrific opportunity because I was able to be involved in a wide range of tasks like design, construction, testing, data analysis and presenting to investors. I felt it was a great fit because a lot of my course work from the BSE department helped me add a lot of value. In 2011, I moved to the Olympic Training Center in San Diego, California where I trained full time. Not a bad place to live after having endured Wisconsin winters. That summer I went to a World Cup event in Lucerne Switzerland as well as the World Championships in Bled Slovenia. The 2011 World Championships were also the Olympic Qualifier race and unfortunately the USA did not qualify the men's eight man boat. I returned to San Diego and began training for the Olympic selection process. In December of 2011, I moved to San Francisco and began Olympic selection for the eight man boat. It was a grueling five month process of constant racing and the threat of getting cut every day. It was also an opportunity for the best athletes to rise to the top. At one point, I was actually in a leadership position in the boat which boosted my confidence of going to the Olympics. However, my twin brother Grant (also a UW alumnus) was also in selection and the coaches figured if one twin was good the other must be good too, so he took my spot and I got thrown back in the grinder. I then had to fight for the very last spot in the boat. In the end, my brother and I were selected for the eight man boat and we went to Lucerne Switzerland to the final Olympic Qualifier race. That was our first race as a team and we won against France and New Zealand and were off to the Olympics. The Olympic experience was phenomenal. The chance to win an



Olympic medal was both exciting and terrifying. The Olympic final was the closest race in our event's history with only two seconds between the six boats in the final. With 30,000 fans creating a deafening cheer at the finish line, the USA missed a bronze medal by only three tenths of a second. It was the most amazing race of my life.

Rowing finishes in the first week of the Olympics, so I had all of the second week to explore London and watch other events. The venues were amazing and there was a great atmosphere of excitement everywhere. It was also one of the most interesting groups of individuals from around the world. Everyone is there for the same thing and they are the best at what they do. That was interesting because you realize that they may have done outstanding things but they are still just human like everyone else.

Now I am enjoying some time off for the first time in four years. I'll be back to full time training soon and plan on rowing for the 2016 Olympics in Rio de Janeiro. During my training I also intend to find more part time engineering work in renewable energies. I hope I can make the BSE department proud in my future adventures both on and off the water.

Alumni Update

Brian & Jill Huenink

The Huenik's are excited to be living in Wisconsin again! A year and a half ago, they moved to the farm in Cedar Grove where Brian grew up, becoming partners in Brian's family dairy & certified seed operation. Brian (BS 2000, MS 2003) continues to work by telecommuting for the John Deere Product Engineering Center in Waterloo, Iowa as a senior design engineer for 7R tractor chassis & exhaust components, helping to ensure emissions compliance. Jill (BS 2003) works part-time on the farm and is a full-time mom to their three young boys. Brian and Jill are proud supporters of BSE.

Martin Burkhardt

Martin Burkhardt received the *CALS Distinguished Alumni Award*.

Burkhardt's career includes faculty roles at UW-Platteville, State University of New York/Cobleskill, and several positions at Wausau Insurance Companies. In order to promote hands-on-learning that rewards students financially, he established the Burkhardt Fund, which supports a variety of work experiences for students in Biological Systems Engineering and other departments. This fund is very valuable to BSE students. In addition, the fund established the Burkhardt English Garden in the Allen Centennial Gardens in memory of Burkhardt's parents. He is also a charter member, former board member, and one of the most dedicated volunteers of the Wisconsin Agricultural and Life Sciences Alumni Association.

Tom Gunkel

Tom Gunkel is the recipient of the 2012 *Distinguished Achievement Award*. Gunkel works for Mortenson Construction, the 19th largest U.S. contractor, which built the beautiful Wisconsin Institutes for Discovery Building. Gunkel received his bachelor's degree in construction administration from UW-Madison in 1982 and immediately joined Mortenson as a project estimator. He has since moved up in the company to president and then chief executive officer. Under Gunkel's leadership, Mortenson has constructed many high-profile buildings and is instrumental in developing wind and solar power facilities. Throughout his career, Gunkel has used his professional and personal success to support UW-Madison and the College of Engineering. He often arranges construction industry experts to speak to engineering students, and has been a fund-raiser, guest lecturer and strong supporter of faculty and expanding construction education at every opportunity. He also has served on departmental-level advisory committees and was a longtime member and past chair of the College of Engineering Industrial Advisory Board.

Ron Schuler and Gail Janssen

BSE Alumni, Ron Schuler and Gail Janssen, were honored by the Wisconsin Agricultural and Life Sciences Alumni Association for their numerous contributions to Wisconsin agriculture. Both Ron and Gail have been longtime contributors to BSE. Congratulations on this honor, and thank you for your continued support.



Prof. Kevin Shinnars presented Jill and Brian Huenink with the 2012 Young Engineer Award in March 2012.

Thank You

Contributors to BSE from February 2012– October 2012

David A. Broten

Matthew E. Herzmann

Gregory B. Weber

John Deere World Headquarters

Scott A. Mueller

ConocoPhillips

Todd D. England

Donald Erbach

John Deere Foundation

Timothy J. Koch

Timothy J. Kraus

Stephen A. Rohlede

David K. Schirer

Richard R. Stowell

TOSA Foundation

Todd M. Wehler

Brandon Sylvester Welsh

Wisconsin Farm Technology Days

Funding Update...

Please give some consideration in contributing to one of the Biological Systems Engineering Department Funds listed below:

Biological Systems Engineering Fund

Biological Systems Engineering Student Activities Fund

Biological Systems Engineering Student Scholarship Fund

We sincerely wish to thank our alumni and friends who have generously supported the College of Agricultural and Life Sciences Department of Biological Systems Engineering. Your gifts today are more important than ever as the University faces challenging budget constraints. Gifts made to the Department of Biological Systems Engineering help us with scholarship, facilities improvement, endowed professorship and graduate fellowships, and carry on our tradition as leaders and innovators in the biological systems engineering field.

An invitation to join the prestigious Bascom Hill Society is extended to those who provide support of \$50,000 or more to the department or to a specific project or program of their choice. You can pledge your commitment over a 10-year period, provide for a gift in your will, or give a gift of annuities or appreciated stock. If you have specific questions about giving, please contact Barbara McCarthy at the UW Foundation (Phone: 608-265-5891; e-mail: barb.mccarthy@supportuw.org).

Department of Biological Systems Engineering Funds

Two options to make a gift:

1. Visit the BSE website at **bse.wisc.edu** and select “**Support BSE**” in the left column.
2. Make checks payable to University of Wisconsin Foundation and return this form to:

**University of Wisconsin Foundation
US Bank Lockbox
PO Box 78807
Milwaukee, WI 53278-0807**

I/we would like to join other alumni and friends in support of the Department of Biological Systems Engineering.

I/we wish to pledge \$ _____ over _____ years. Please remind me of my pledge in _____ (month).

I/we contribute \$ _____. (Contribution is enclosed.) My company will match this gift; company form enclosed.

I/we wish to have my contribution support _____ fund.

Name: _____ E-Mail: _____

Address: _____

City: _____ State: _____ Zip: _____

Please charge my gift of \$ _____ to my: MasterCard Visa American Express

Card number _____ Expiration date _____

Cardholder's name as it appears on credit card (please print): _____

Cardholder's Signature: _____ Date _____

BIOLOGICAL SYSTEMS ENGINEERING
 BIOLOGICAL SYSTEMS ENGINEERING—UPDATE
 460 HENRY MALL
 MADISON, WI 53706

Please Keep in Touch!

Alumni Update

Name: _____

Degree and Date(s): BS () MS () PhD ()

Home Address: _____

E-mail Address: _____

Phone Number: _____ Fax Number: _____

Position: _____

Employer: _____

News to share: _____

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 bse@wisc.edu**