



BIOMEDICAL ENGINEERING

FALL 2018

U-M BME & SHANTOU UNIVERSITY

SHAPING THE BIOMEDICAL
ENGINEERING WORKFORCE
OF TOMORROW

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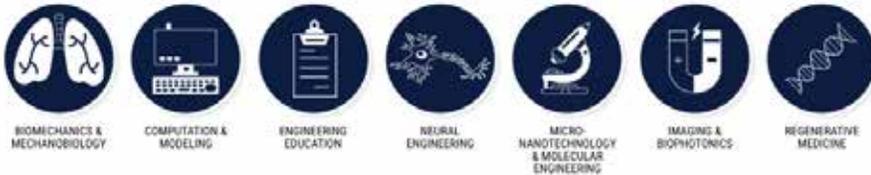
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RESEARCH AREAS



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**BIOMEDICAL
ENGINEERING**
UNIVERSITY OF MICHIGAN

FALL 2018

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Biomedical Engineering and Steven
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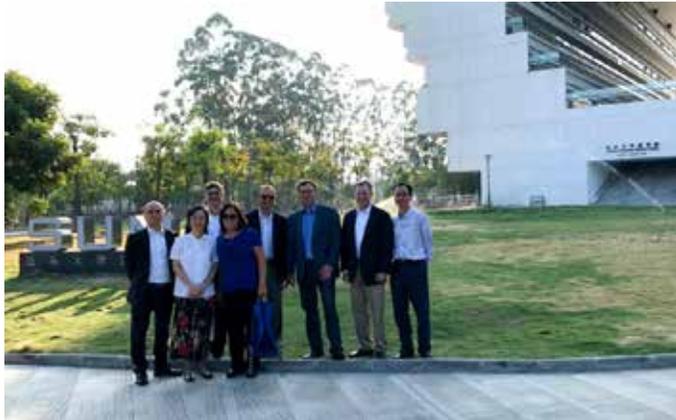
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U-M BME AND SHANTOU UNIVERSITY

SHAPING THE BIOMEDICAL ENGINEERING WORKFORCE OF TOMORROW

by Kim Roth



Officials from the University of Michigan and Shantou University on Shantou University Medical College (SUMC) campus where the Chinese university is launching a transformational Biomedical Engineering program.

A new international collaboration is underway, forging deeper connections between U-M BME and Shantou University (STU) in China. The two institutions are working side by side to develop a BME program at STU that will shape the biomedical engineering workforce of tomorrow.

With a goal to create a world-class BME experience, the team led by U-M BME professors **Aileen Huang-Saad** and **Jan Stegemann**, as well as U-M BME Lecturer **Rachael Schmedlen**, STU-BME Associate Professor David Ng and STU-BME Professor and Chair John Fang, is working to prepare students for current and future challenges.

PREPARING STUDENTS

"We're witnessing the explosion of knowledge as well as the exponential growth of information in the 21st century," said Dr. John Fang, professor and chair of the new STU-BME program. As a result, students must develop the capabilities to self-direct their learning and identify and analyze information from among a sea of data, he says. "Critical thinking and problem-solving skills are also becoming more and more important. Last but not least, students need collaborative skills since our world is becoming more sophisticated and diversified."

The Li Ka Shing Foundation has provided financial support to both institutions to support the collaborative effort. Mr. Li was motivated by a desire to give back to the area where he grew up, the Chaosan region, which is home to STU.

Currently, the funding includes support for two postdoctoral fellows at U-M. **Eric Hald**, an instructional fellow and STU-BME program coordinator, joined the team in 2017 and spent

a year in Ann Arbor in Huang-Saad's lab. While at U-M, he observed U-M BME courses and participated in the Instructional Incubator Huang-Saad developed. **Nicole Ramo**, a UM-STU postdoctoral fellow based in Ann Arbor, also in Huang-Saad's research group, joined the team in 2018.

"CRITICAL THINKING AND PROBLEM-SOLVING SKILLS ARE ALSO BECOMING MORE AND MORE IMPORTANT... STUDENTS NEED COLLABORATIVE SKILLS SINCE OUR WORLD IS BECOMING MORE SOPHISTICATED AND DIVERSIFIED."

- Dr. John Fang

A NATURAL PARTNER

When selecting a partner with which STU would build the new biomedical engineering program, University of Michigan BME was a natural fit and role model, says Fang. "U-M BME is one of the earliest, largest and strongest BME programs in the United States. Today's BME program at U-M is also the result of longtime pedagogical research and practice.

"Michigan brings many years of success and institutional knowledge in undergraduate biomedical engineering education as well as an emphasis on design-focused, team-based curricula and experiential learning," adds Hald.

Another key strength is U-M BME's joint program in both the College of Engineering and the U-M Medical School.

"U-M's joint program provides a great model for the new STU program," said Hald, since Shantou University also works closely with Shantou University Medical College (SUMC) and many SUMC-affiliated hospitals. The STU-BME program also will be the first all-English degree program offered at STU, and it's modeled after an all-English SUMC program for medical doctors.

"Between the model BME curriculum at U-M and model

CONTINUED ON PAGE 10

U-M BME: SEIZING OPPORTUNITIES

by Kim Roth

As we head into the second half of the Fall semester, I'm thrilled to share with you the Department's ongoing progress, and promise, on several fronts.

*We recently secured approval from the College of Engineering to transform the ground floor of LBME into a next-generation design space. Professor **Jan Stegemann** worked with faculty and students on designing the space, and renovations will be supported by a generous gift from the Li Ka Shing Foundation and funds from the College. Once completed, the approximately 10,000-square-foot space will serve as a hub of design activity, including ideation, prototyping and more. Our aim is to enhance the design experience for students, promote even greater engagement with Medical School faculty and forge new and deeper industry collaborations — all to bring our many ideas to life and, ultimately, to translate devices, technologies and discoveries into clinical practice.*

*The new space is aligned with our next-generation curriculum, with its focus on experiential learning for students at all levels. In fact, we're entering year 2 of our Instructional Incubator, conceived of by Assistant Professor **Aileen Huang-Saad**,*



William and Valerie Hall Chair of Biomedical Engineering and Stephen A. Goldstein Collegiate Professor of Biomedical Engineering, Lonnie D. Shea Ph.D. Photo: Joseph Xu.

whose research focuses on engineering education. The incubator applies the design process to key parts of our curriculum, an approach that is unique among BME programs.

The incubator was initiated in Fall 2017 and led to the development of learning modules for undergraduates, three of which were piloted in Winter 2018. We expected the modules to draw sophomores predominantly, yet a sizeable number of first-year students registered for the mini-courses, with many registering for all three! Early exposure to the many facets of biomedical engineering can help students to understand the skills developed with a major in BME — and can initiate the matching of their interests with potential career opportunities at the earliest stages of their education.

We also just held our first Friday Research Forum, part of an initiative spearheaded by Professor **Jim Weiland**. The forums bring department representatives and investigators from the Medical School to present their work and challenges to BME grad students, post-docs and faculty. Similarly, participants from BME will share their expertise and technologies, and we're confident new ideas and collaborations will emerge as the forums continue throughout the Fall and Winter terms.

The combination of a greater number of faculty undertaking computational research along with emerging opportunities for AI and machine learning in medicine has led us to develop a new biocomputing track for students. The track is slated for launch in Fall 2019, and will allow students to apply cutting edge computational tools to problems that lie at the interface of bioengineering and medicine.

The Department's External Advisory Board continues to provide valuable insights on our curriculum towards the goal of providing the best training for wide-ranging careers in biomedical engineering. Under the leadership of Scott Merz, president and chief executive of MC3 Cardiopulmonary, the board also is helping to shape the new design space, including an enhanced engagement with industry so that students can develop their skills for an industrial setting.

Our research expenditures continue upward - an increase of more than 22% over the previous year. We also welcomed two new faculty — Associate Professor **Dave Nordsletten**

(cardiovascular biomechanics) and Assistant Professor **Tobias Giessen** (synthetic biology) — as well as two new lecturers, **Barry Belmont** and **Melissa Wrobel**. The energy and expertise of this group will enable building our curriculum and research portfolio in new ways.

Diversity, equity and inclusion (DEI) continue to be interwoven in the Department's many and daily activities, from recruitment and mentoring to teaching, training and outreach. As examples, our faculty have hosted a one-day lab visit for at-risk youth from Detroit to talk about research, given talks to students at Detroit-area high schools and served as instructors for the DAPCEP program (Detroit Area Pre-College Engineering Program). Others have hosted Saturday symposia for community college students about STEM careers and participated in programs at the Society of Hispanic Engineers, Society for Advancement of Chicanos/Hispanics and Native Americans in Science, and the Annual Biomedical Research Conference for Minority Students.

With such exciting opportunities — ones we are well-positioned to seize and make reality — you can feel the enthusiasm throughout the Department. We are shaping the future of the field on many fronts. It is exhilarating to know our current and future students will benefit from the evolving curriculum and educational experience, and our faculty will increasingly impact research, technology and translation in countless ways.



Lonnie Shea, Ph.D.

William and Valerie Hall Chair, Biomedical Engineering
Stephen A. Goldstein Collegiate Professor, Biomedical Engineering

NEWS NOTES

UROSUCTION SCOPE WINS BMEIDEA TOP PRIZE



Team Urosuction Scope

UroSuction Scope, a team from BME's graduate design program, was awarded first place at the annual BMEidea competition at the Medical Design Excellence Awards, part of the MD&M East Conference, on June 12, 2018. BMEidea is the nation's premier competition for biomedical and bioengineering innovation, open to both graduate and undergraduate students. It challenges young innovators to pioneer a health-related technology that addresses a real clinical need.

The team (**Tyler Bylsma**, **Trish Dine**, **Madhu Parigi**, **Julian Sit**, and **Erik Thomas**) worked with Dr. Khurshid Ghani, Associate Professor of Urology at Michigan Medicine, to develop a novel ureteroscope that allows urologists to safely perform kidney stone removal procedures with the aim to maintain low intra-renal pressure. The all-in-one solution safely combines irrigation with active suction within the ureteroscope to reduce the risk of tissue damage and post-operative infection. Their project will continue through funds from BMEidea as well as FFMI's Mi-Kickstart grant.

AARON MORRIS RECEIVES LIFE SCIENCES FELLOWSHIP

Aaron Morris, U-M BME Postdoc in the Shea lab, received an inaugural University of Michigan Life Sciences Institute fellowship! Morris' postdoctoral research will investigate the systemic effects of immune-modifying particles in autoimmune diseases such as multiple sclerosis.

BME PHD STUDENT'S WIN FIRST PLACE AT WORLD CONGRESS OF BIOMECHANICS

BME PhD students **Federica Cuomo** of **Alberto Figueroa's** Computational Vascular Mechanics Lab and **William Wang** of **Brendon Baker's** Engineered Microenvironments and Mechanobiology Lab won first place honors in the PhD Student Paper Competition of the World Congress of Biomechanics. Cuomo was honored in the 'Biotransport, Cryopreservation and Cardiovascular Modelling' competition for her paper titled "FSI models of murine hemodynamics in wild type and *Fbln5*^{-/-} populations" and Wang won the 'Biomechanics at the Cell, Tissue and Multiscale Level' competition for his paper titled "Actomyosin contractility-dependent matrix stretch and recoil induces rapid cell migration." Held only once every 4 years, these two wins by U-M BME students in Dublin comprise two of the three highly competitive student paper competitions at one of the premiere biomechanics conference worldwide.



Prof. Brendon Baker, William Wang, Federica Cuomo, and Prof. Alberto Figueroa.

TIM BRUNS AND JAMES DAY RECEIVE GRADUATE EDUCATION AWARDS

PhD student **James Day** won the 2017-2018 Endowment for the Development of Graduate Education (EDGE) Award.

Assistant Professor **Tim Bruns** received an Endowment for the Basic Sciences Teaching Award.



James Day receives his teaching award from Dept. Chair Lonnie Shea.

The Endowment for Basic Sciences (EBS) is a cooperative program developed by former U-M Medical School Dean, Allen Lichter, and the Chairs and Directors of the ten participating units. Together, it works for the advancement of research and teaching in the Medical School Basic Sciences through the development of new research initiatives, and recruitment of new faculty.

TWO BME RESEARCHERS RECEIVE 2018 INAUGURAL PRECISION HEALTH SCHOLARS AWARDS

Abhinav Achreja, research fellow in **Deepak Nagrath's** Systems Biology of Human Diseases Lab and **Aaron Morris**, research fellow in **Lonnie Shea's** lab received two of the 12 inaugural 2018 Precision Health Scholars Awards. Achreja is researching, "Phenotype and metabotype analysis of cancer patient-specific metabolic vulnerabilities" and Morris' research topic focuses on "In vivo engineered precision prognostics for multiple sclerosis." Precision Health at the University of Michigan awarded grants of up to \$80k each to support cutting-edge precision health research. Precision Health Highlighted Morris' project in an article that accompanied the list of awardees.

RECENT BME PHD PUBLISHED IN NATURE: MICROSYSTEMS AND NANOENGINEERING

Komal Kampasi, PhD, recent BME graduate was first author on an article featured on the June cover of *Microsystems and Nanoengineering* - Nature. The work titled, "Dual color optogenetic control of neural populations using low-noise, multishank optoelectrodes" came out of Kampasi's doctoral research done in BME associated professor, **Eusik Yoon**'s lab. Kampasi is joined on the paper by his advisor Eusik Yoon and other BME affiliated research scientist **John Seymour**, PhD, and BME associated professor emerita **Kensall Wise**. You can read the full article which gives a good platform to showcase their ongoing research at the nature website.

CASSANDRA WOODCOCK WINS DIVERSITY ESSAY CONTEST AT ASEE

Congratulations to **Cassandra Woodcock**, doctoral student in Aileen Huang-Saad's Transforming Engineering Education co-Laboratory, for receiving an award from The American Society for Engineering Education (ASEE) Diversity Committee's 2018 Student Video/Essay Contest. She was awarded First Place for her short essay on diversity on teams in engineering titled "Transforming Differences to Resources."



Cassandra Woodcock.

DR. ARIELLA SHIKANOV RECEIVES CMBE YOUNG INNOVATOR AWARD



Ariella Shikanov, Ph.D. Photo: Mike Funkhouser

Dr. **Ariella Shikanov** is a 2018 recipient of the Cellular and Molecular Bioengineering Young Innovator Award. Her published article focused on nanoparticle and microtechnology-based biomedical applications. Dr. Shikanov and her colleagues encapsulated early-stage ovarian follicles in alginate and investigated the mechanisms of paracrine signaling over 12 days of culture.

CHRISTIN CARTER-SU COLLEGIATE PROFESSORSHIP



Susan Brooks Herzog, Ph.D. gives a lecture after receiving her installation ceremony.

BME faculty colleague **Susan Brooks Herzog**, Ph.D., was installed as the first Christin Carter-Su Collegiate Professor of Physiology during a collegiate professorship inauguration and installation ceremony on Wednesday, September 26, 2018.

STEVEN A. GOLDSTEIN COLLEGIATE PROFESSORSHIP



Lonnie Shea, Ph.D. (center) with Medical School Executive Vice Dean, Carol Bradford, MD and Dean of Engineering, Alec Gallimore, Ph.D. at his installation ceremony.

Professor **Lonnie D. Shea**, William and Valerie Hall Chair of Biomedical Engineering, was installed as the Steven A. Goldstein Collegiate Professor of Biomedical Engineering. Professor Shea presented a lecture titled "On the Alliance of Engineering and Medicine."

BME PH.D. STUDENT TO PRESENT AT THE RAPID FIRE GRADUATE STUDENT COMPETITION

Kritika Iyer, BME Ph.D. student, has been selected to present at the Rapid Fire Graduate Student competition during the WE18 (Women in Engineering 2018)



Kritika Iyer

Conference, an annual event hosted by the Society of Women Engineers. Kritika was chosen as one of 10 graduate students, all from a variety of engineering disciplines, to be a finalist in the competition. The competition takes place on day 2 of the conference, October 19th, where she will present a five minute lightning talk on her research, “Noninvasive Diagnostics of Coronary Artery Disease using Machine Learning and Computational Fluid Dynamics.”

SRIRAM CHANDRASEKARAN RECEIVES 2018 DISTINGUISHED YOUNG INVESTIGATOR AWARD



Sriram Chandrasekaran, Ph.D. Photo: Akhil Kantipuly.

The 5th Annual Conference on Constraint-Based Reconstruction and Analysis (COBRA 2018) took place in Seattle, Washington October 14-16. During the conference, Dr. **Sriram Chandrasekaran** was awarded the 2018 Distinguished Young Investigator Award and spoke about “Pathogen Metabolism and Antibiotic Resistance.”

PRECISION HEALTH AT U-M ANNOUNCES TWO BME AWARD RECIPIENTS

Selected from over 100 applicants, Professor **Sriram Chandrasekaran** (Assistant Professor, BME) and Dr. **Scott Peltier** (Associate Research Scientist, Functional MRI Laboratory and BME)

have been named recipients of the 2018 Investigators Awards. The award, a grant of up to \$300,000 over two years, will provide funding and support for their research projects in the precision health fields. Dr. Chandrasekaran’s project, “Personalized therapies for drug-resistant infections using a multi-scale host-pathogen model,” aims to “shift current clinical practice by changing an empirical, one-size-fits-all approach to a rational approach specific to the pathogen strain and the patient.” Dr. Peltier’s project is entitled, “Using quantitative neuroimaging to enhance clinical prediction in Alzheimer’s dementia.”

U-M BME STUDENT WINS AWARD AT 2018 BMES CONFERENCE

Colleen Crouch, a U-M graduate student working in Dr. **Joan Greve’s** lab, won a 2018 BMES Career Development Award. During the 2018 BMES Conference Colleen spoke about her project, entitled “P-TH-476 Redistribution of Blood Volume in Arteries and Veins Due to Changes in Core Body Temperature.”

U-M BME STUDENT WINS PRIZE FOR OUTSTANDING PHD RESEARCH

Each department in the College of Engineering nominated up to 2 Ph.D. students within a year of graduation to compete in the Engineering Graduate Symposium (EGS) with a lightning talk and poster session. BME Ph.D. student **Olivia Palmer** won the Richard and Eleanor Towner Prize for Outstanding Ph.D. Research. In addition to her win, Olivia served as a Co-Chair for EGS and completely re-imagined the event – eliminating technical tracts, inviting Post-docs to review abstracts, introducing 4 new award categories for the poster competition, and more.

U-M BME STUDENTS PLACE AT GRADUATE RAPID FIRE COMPETITION

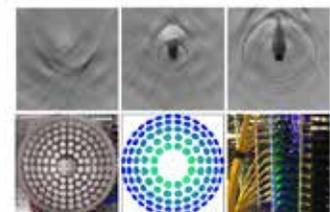
The Graduate Rapid Fire Competition that took place during the WE18 Conference in Minneapolis October 18-20th had a strong showing from U-M BME. BME Ph.D. students **Caymen Novak** and **Kritika Iyer** were selected as 2 of the 10 finalists in the Graduate Rapid Fire Competition winning 2nd and 3rd place, respectively. Kritika spoke about her project entitled, “Noninvasive Diagnostics of Coronary Artery Disease using Machine Learning and Computational Fluid Dynamics” while Caymen’s rapid fire talk was entitled “Compressive Stimulus Enhances Ovarian Cancer Proliferation, Invasion, and Mechanotransduction in a Novel 3D Compression Bioreactor.” Caymen also gave a lightning talk on using exercise to cope with stress titled, “Work the stress out of life: How exercise impacts mental health and how to use it to cope with stress.”

In addition, **Olivia Palmer** was selected from over 900 applications to give an hour-long presentation to prospective Ph.D. students on how to navigate graduate school.

HISTOTRIPSY PAPER CHOSEN AS COVER ART FOR IEEE TUFFC

A recent publication from the Histotripsy

IEEE TRANSACTIONS ON
ULTRASONICS, FERROELECTRICS,
AND FREQUENCY CONTROL



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Group was chosen as the cover art for the November 2018 edition of IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control. The article, “Soft-Tissue Aberration Correction for Histotripsy,” was co-written by BME faculty and graduate students including, **Jonathan Macoskey, Timothy Hall, Jonathan Sukovich, Sang Won Choi, Kimberly Ives, Charles Cain, Zhen Xu,** and Eric Johnsen (Department of Mechanical Engineering).

PROF. CHARLES CAIN RECEIVES RAYLEIGH AWARD AT 2018 IEEE INTERNATIONAL ULTRASONICS SYMPOSIUM



Prof. Charles Cain (center right) receives his award from BME Prof. Zhen Xu (center left).

At the 2018 IEEE International Ultrasonics Symposium held in Kobe, Japan, Dr. **Charles Cain** received the 2018 Rayleigh award for his substantial contributions to therapeutic ultrasound and for the invention and development of Histotripsy. The Rayleigh Award, one of three annual IEEE Ultrasonics awards, represents the highest honor for achievement within the IEEE Ultrasonics, Ferroelectrics, and Frequency Control (UFFC) Society in the field of Ultrasonics. Laudation for Dr. Cain was given by Dr. **Zhen Xu**, UFFC President and UM-BME colleague.

PROF. LONNIE SHEA AND PROF. AILEEN HUANG-SAAD SPEAK AT 2018 EWA SYMPOSIUM



Lonnie Shea, Ph.D. speaking at EWA symposium.

The 2018 East-West Alliance Symposium was held at Shantou University Medical College in Shantou, China, with the theme of “What Makes An Impactful Institution?” Dr. **Lonnie Shea** and Dr. **Aileen Huang-Saad** both spoke as part of the Institutional Resiliency and Effectiveness session. The University of Michigan joined the East-West Alliance, an international network of medical schools and research institutions, as a new member in 2018.

BME PHD STUDENT WINS SILVER AWARD AT MATERIALS RESEARCH SYMPOSIUM 2018

Caymen Novak, a BME PhD student working in Dr. **Geeta Mehta**’s lab, won a silver award and a \$400 prize for her oral presentation at the 3rd Annual Materials Research Symposium. The symposium was open to graduate and undergraduate students from across campus at U-M engaged in materials research. Caymen and the other winners will be recognized at the annual MSE Graduate and Awards Banquet on April 18, 2019.

DR. RACHAEL SCHMEDLEN NOMINATED TO TAU BETA PI ENGINEERING HONOR SOCIETY

Dr. **Rachael Schmedlen**, BME undergraduate education chair, has been nominated to Tau Beta Pi, the Engineering Honor Society, as an Eminent Engineer. Tau Beta Pi is the only engineering honor society representing the entire engineering profession, and now has a total of 248 collegiate chapters at US colleges and Universities. Such a nomination comes from her service to students in the classroom and beyond, and requires an established and ongoing commitment to the engineering field.

BME STUDENT WINS THE GENENTECH: US BIOLOGICS TECHNICAL DEVELOPMENT OUTSTANDING STUDENT AWARD FOR 2019



Thomas Stewart.

Biomedical Engineering junior **Thomas Stewart** has won the Genentech: US Biologics Technical Development Outstanding Student Award for 2019. The Genentech USBTD Student Awards were founded to recognize outstanding students in disciplines related to Chemical and Chemical-Biological Engineering at selected schools. A student of Dr. **Joan Greve**, she describes Thomas as one of her most engaged students and says he exudes the compassion necessary to be a tremendous biomedical engineer. **M**

all-English program at SUMC, the STU-BME undergraduate program is poised to offer students a unique opportunity to study biomedical engineering in China," Hald says.

"THE STU-BME UNDERGRADUATE PROGRAM IS POISED TO OFFER STUDENTS A UNIQUE OPPORTUNITY TO STUDY BIOMEDICAL ENGINEERING IN CHINA."

- Eric Hald, Ph.D.

CORE AIMS

At the heart of the new program lie five key aims: a focus on experiential learning, a comprehensive design program, the

integration of BME practice, exposure to cutting-edge research and, of course, translation to clinical care.

The young STU-BME program is currently offering three courses directly through the department this fall: Calculus I, Organic Chemistry and Experiment (Lab), and Intro to Biomedical Engineering, which is modeled after U-M's ENGR 100 Section 500 course in Biotechnology, taught by lecturers **Barry Belmont**, **Rob Sulewski** and **Christian Casper**.

The STU course, notes Hald, introduces students to biomedical engineering and the core disciplines offered in the STU-BME program: biomechanics and biomaterials, medical technology and medical informatics. Students gain early exposure to engineering design principles and work on a semester-long team project with SUMC clinicians and STU faculty.

Students attend both traditional lecture as well as lab and discussion sections. Lectures have been designed to use active learning techniques as often as possible. As an example, Hald says students work hands-on with Arduinos — single-board microcontrollers — while learning the theory via lecture. They then are asked to complete an Arduino-based electrocardiogram lab exercise.



Students in the new STU Biomedical Engineering program participating in a collaborative group activity.



Eric Hald, U-M BME instructional fellow and STU-BME program coordinator at the beginning of his year long instructional exchange at the Biomedical Engineering department at Shantou University.

The young program will offer a bachelor's degree in biomedical engineering, and students can select from among the following concentrations:

- Biomechanics and biomaterials
- Medical technology (equipment and imaging)
- Medical informatics (bioinformatics)

Currently, 33 first-year undergraduate students are enrolled. In China, Hald explains, students join a program when they start their undergraduate education. "The department is being built from the ground up with each successive class," he says.

Hald, now based in Shantou, is helping teach the first class of BME students and continues to revise and develop the curriculum with Ramo. The two are busy designing future courses as the program grows and students progress to subsequent years.

One course under development, Fundamentals of Biomedicine, will be unique to STU and combine the fundamentals of introductory cell biology, physiology and biochemistry with problem-based learning and lab sessions throughout the semester. The course is modeled after an existing course offered by SUMC to second-year undergrad medical students and will serve as the basis for future BME courses in quantitative cell biology and quantitative physiology.

Several other courses are under development. Hald and Ramo also are building relationships with SUMC-affiliated faculty and clinicians, who will serve as mentors to and project clients for students — and provide undergraduate research opportunities.

LOOKING TO THE FUTURE

As program moves forward, the global team is working toward several goals, including building a highly engaging program through evidence-based teaching practices; recruiting faculty with a strong record of research, teaching and scholarship and developing international research collaborations that support the work of students and faculty at both institutions.

It's an ambitious vision, one to which Hald and Ramo are both excited to contribute. "It's an amazing opportunity to experience and be immersed in another culture," says Hald. "I couldn't dream of working with a better team, and in spite of many differences in culture and environment, we all have a shared interest in helping others through the field of biomedical engineering."

"I COULDN'T DREAM OF WORKING WITH A BETTER TEAM, AND IN SPITE OF MANY DIFFERENCES IN CULTURE AND ENVIRONMENT, WE ALL HAVE A SHARED INTEREST IN HELPING OTHERS THROUGH THE FIELD OF BIOMEDICAL ENGINEERING."

- Eric Hald Ph.D.

In only a few weeks at U-M, Ramo already has enjoyed learning about and experiencing how other institutions approach their BME undergraduate education and applying what she's learned as a graduate teaching assistant and fellow in BME at Colorado State University, where she earned her PhD.

"Helping to build this new program is such a unique opportunity — the chance to be a part of the BME program at U-M, which has such a strong reputation worldwide, and there's the added bonus of getting the chance to live and teach internationally."

Fang, too, is looking ahead. "With the great support from the Li Ka Shing Foundation and the enthusiastic and effective support from U-M BME, I am confident this collaboration will be a success." **M**



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