Professor Richter Receives $1,000,000 in NSF Grants

Dr. Hanz Richter, an associate professor in the Department of Mechanical Engineering, received two grants totaling $1,000,000 from the National Science Foundation.

The first grant is a four-year $800,000 grant to develop cyber-enabled exercise machines (CEEMs), and is a collaboration with Professors Dan Simon and Antonie van den Bogert in the Washkewicz College of Engineering, and Professor Ken Sparks in the College of Education and Human Services. Unlike existing exercise machines, CEEMs will capture biomechanical feedback from exercise machine users, and will then adjust their own resistance to maximize effectiveness. The machines will be reconfigurable by software, permitting a wide range of exercises with the same hardware. The same foundations and methodologies can eventually be used to design machines for rehabilitation, exercise devices for astronauts, and exercise devices for the elderly and disabled.

Dr. Richter is the sole investigator on his second grant, which is a $200,000 award to design, control, and optimize energy-regenerating robots. Many industrial, consumer, and medical products involve masses in motion. Conventional braking, which is the traditional method of deceleration, is inefficient because the resulting heat wastes energy. In contrast, regeneration captures surplus energy and then stores it in a power supply. Regeneration is well known in electric and hybrid vehicles, but its development and application in robotics is a novel and challenging research area. Dr. Richter's research promises the potential for significant energy savings in industrial settings.
Meet CSU's New Faculty

Dr. Emily Kullman joined CSU in fall 2013 as an assistant professor of exercise science in the Department of Health and Human Performance (HHP). Professor Kullman's research involves the relationship between physical activity and cancer. Her research is aimed at improving the quality of life and general health of persons who are recovering from cancer treatment.

Chemotherapy can cause nerve cell damage, which leads to a condition known as chemotherapy-induced peripheral neuropathy (CIPN). CIPN includes chronic discomfort, difficulty in performing routine activities, and overall diminished quality of life. Little is known about the impact of resistance training on CIPN. Suspension training is a relatively new form of resistance training that individuals can perform in a variety of settings, including their own homes, and its intensity can easily be controlled by the individual. Dr. Kullman is currently studying the effects of suspension training on functional movements among young, healthy subjects to collect pilot data for the development of a therapeutic program for those afflicted with CIPN.

The second area of Dr. Kullman's research focuses on exercise adherence among prostate cancer survivors. Lack of physical activity is considered a risk factor for the development of prostate cancer, its reoccurrence, and the survival rate after diagnosis. Dragon boat racing is a unique, team-oriented approach to exercise that has successfully improved exercise adherence among breast cancer survivors. In collaboration with The Gathering Place, a Cleveland-based non-profit cancer support organization, Dr. Kullman is conducting research to determine if dragon boat racing can improve exercise adherence among men undergoing treatment or recovery from prostate cancer.

Featured Researcher Video Series - Milena Sterio

Research by Professor Milena Sterio is the focus of the latest installment of the Featured Researcher Video series.

Professor Sterio is the Charles R. Emrick Jr. - Calfee Halter & Griswold Professor of Law and Associate Dean for Academic Enrichment in the Cleveland-Marshall College of Law. Her research interests are in the fields of international law, international human rights, laws of the seas, and maritime piracy. In her capacity as an expert on maritime piracy law, she has participated in meetings of the United Nations Contact Group on Piracy off the Coast of Somalia. We encourage you to learn more about Professor Sterio's research, and to take a look at our previous Featured Researcher Videos.

CSU Scholar News

Dr. Rama K. Jayanti is a professor of marketing and a
Fulbright Fellow. Her research focuses on consumer participation in online social communities with the potential for healthcare empowerment. She examines health narratives through the lens of pragmatic learning, which is unique in two ways. First, it involves an experiential perspective on learning, challenging the deeply entrenched rational rule-based learning paradigm in consumer psychology. Second, it uses the unique context of online health communities, and the unique methodology of netnography, to discover how consumers learn through pragmatic learning processes.

Dr. Jayanti's research has been published in the prestigious *Journal of Consumer Research* and has been featured in *Crain's Cleveland Business* and *Medill Reports Chicago*. In addition to her teaching career at CSU, she has taught at Arizona State University, the Indian Institute of Management in Bangalore, India, and Berufsakademie in Heidenheim, Germany. She has been featured on TV and radio, serves on several marketing journal editorial boards, and has served as an invited panelist at several local business seminars.

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**News from the Technology Transfer Office**

**Professor Siu-Tung Yau:** Patent prosecution continues in order to further protect Professor Yau's reactant detection technology, which was issued U.S. Patent No. 8,585,879. The TTO has been approached by a Columbus-based company interested in licensing the technology for bacteria detection in food produce.

**Inventorship:** In many situations in academic or institutional settings, several people collaborate on a research project. Are they all inventors? The law states that more than one person may contribute to the conception of an invention, thereby resulting in joint inventorship. Joint inventorship is defined in U.S. Patent Act Title 35 USC § 116, which states:

> When an invention is made by two or more persons jointly, they shall apply for patent jointly and each make the required oath, except as otherwise provided in this title. Inventors may apply for a patent jointly even though (1) they did not physically work together or at the same time, (2) each did not make the same type or amount of contribution, or (3) each did not make a contribution to the subject matter of every claim of the patent.

**APLU IEP Designation:** Members of a CSU working group are currently guiding efforts for the University's application for a prestigious APLU Innovation and Economic Prosperity (IEP) Designation. The working group will soon email a survey to faculty and staff. The survey is a critical component of the application process. The TTO would appreciate a small portion of your time to complete and return the APLU IEP survey.

**MAGNET:** The Incubator at MAGNET is hosting its second ProtoTech: Pitch Competition, which is a competition for early-stage, high-growth potential, technology start-ups. Submissions are due October 16th and finalists will be selected on October 29th. Last year's inaugural winner has raised close to $1M since winning the competition.

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Mandatory Use of Cayuse Begins January 1, 2016
Effective January 1, 2016, SPRS will no longer accept proposal transmittal forms (PTFs). All proposals must be submitted through the Cayuse Grants Management System. If you are not currently using Cayuse, Teri Kocevar can provide one-on-one training or group training. Please contact her at x3675 or by email at m.kocevar@csuohio.edu to schedule training.

Professors Holland, Streletzky, and Ferguson
Receive $75,000 MIRP Award

Professors Nolan Holland (College of Engineering), Kiril Streletzky (College of Sciences and Health Professions), and Robert Ferguson (College of Education and Human Services), have been granted a $75,000 Multi-College Interdisciplinary Research Program (MIRP) award from the Office of Research. MIRP awards fund broad and collaborative research activities that are interdisciplinary and that involve faculty from multiple colleges at CSU.

The title of the team's research project is "Designing Drug Delivery Materials with the Help of High School Students." The project has two overarching goals: (1) to perform cutting edge research on advanced materials, and (2) to provide an authentic research experience for high school students. The scientific objectives will be driven by Drs. Holland and Streletzky, who have a track record of collaborative research on the synthesis and characterization of protein-based nanoparticles. Their research will explore the optimization of nanoparticles for the encapsulation and controlled release of drug compounds. Dr. Ferguson will coordinate the pedagogical and logistical issues associated with the integration of this research at two local high schools: Gilmour Academy (Gates Mills, Ohio) and MC2STEM on the CSU campus. The MIRP award will allow this interdisciplinary team to establish a biotechnology course for designing new protein-based materials, and will allow the team to collect preliminary data for proposals to the NSF and NIH.

Left to right: Professors Ferguson, Holland, and Streletzky

Significant Changes to the FSI and Graduate Faculty Travel Programs

The Office of Research has introduced significant changes to two of its internal funding programs to better serve CSU faculty.
Faculty Scholarship Initiative (FSI): The FSI Program facilitates faculty scholarship in fields that are disadvantaged in terms of external funding. The FSI Program has been expanded in two ways to better facilitate research and scholarship: (1) The FSI funding amount has been increased to $7,500 per award, and (2) The FSI now allows up to 50% of the award amount to be used for faculty summer salary. The next round of FSI application reviews will begin in March 2016. See the FSI web page for details.

Graduate Faculty Research Support (GFRS): The old Graduate Faculty Travel Award Program has been replaced with the new GFRS Program. Faculty recently lost their annual $1,250 faculty development fund to a base salary increase. Because of the loss of faculty development funds, some faculty do not have sufficient funds for journal publication charges. The Office of Research has filled this gap by expanding the travel program to include publication charges. The program has been renamed to the Graduate Faculty Research Support Program, and now supports both travel and publication charges. See the GFRS web page for details.

Research Office Participates in Junior Faculty Mentoring

The Office of Research has begun a collaboration with the College of Sciences and Health Professions, and the College of Engineering, to provide joint mentoring for junior faculty. The mentoring meetings are led by Dr. Richard Rakos from the College of Sciences and Health Professions, Dr. Dan Simon from the College of Engineering and the Office of Research, and various other guest speakers. The meetings cover administrative issues such as budgeting and the collective bargaining agreement, teaching issues such as advising and workload, and research issues such as proposal writing and electronic grant submission. Contact Joy Yard, j.yard@csuohio.edu, in the Office of Research for additional details.

CSU Research Funding Continues to Grow

Previous newsletters have touted the increase in research funding at CSU. For example, CSU R&D expenditures increased by 371% from 2009 to 2013. During that same time period, CSU's national rank in R&D funding improved from 261 to 174. During the decade from 2004 to 2013, CSU ranked 1st in the nation in percentage increase in total research funding, 1st in the nation in percentage increase in federal research funding, and 12th in the nation in percentage increase in corporate research funding, according to an August 2015 report published in The Chronicle of Higher Education; see here for details.

Now the latest figures from Sponsored Programs and Research Services show that CSU research funding continues to grow: external funding awards at CSU increased by 340% during the first quarter of FY 2016, compared to the first quarter of FY 2015.

Please share with us important news or updates on your research, scholarly, or creative activities. Updates may be related to a paper that has been accepted for publication in a high-impact journal, a book you've just published, your work that will be exhibited at a prominent institution, or other updates you wish to share with our office. Send details to j.yard@csuohio.edu and d.j.simon@csuohio.edu.

Visit The Office of Research