

## From the Assistant Vice President

As one of the nation's leading research universities, Case Western Reserve University prides itself on its commitment to innovation and contribution to the well-being of individuals, organizations and society at large. Our university empowers its faculty and students through collaborative, translational research institutes that more rapidly filter innovative ideas and integrate them into the marketplace. From virtual to tangible, interdisciplinary to inter-institutional, educational and explorative centers and institutes are at the center of Case Western Reserve's vision.

We have several examples of cross-cutting Institutes that engage with industry on direct research that impacts their business as well as partnering with us on major government grants. The Great Lakes Energy Institute (GLEI) is an important vehicle for industry to engage on issues and opportunities in the energy sector. GLEI has partnered with Eaton, FirstEnergy, Siemens, 3M, UL, JCI, Parker Hannifin, and Rockwell to name but a few on projects as varied as wind, future grid, energy storage, and solar.

We have newer institutes such as our Interactive Commons and ISSACS (The Institute for Smart, Secure, and Connected Systems) that are bringing together groups across campus to explore issues in the Internet of Things and data science areas to present and represent actionable information. There are many others!

If you are interested in learning more about our Institutes, please get in touch with us at [corporaterelations@case.edu](mailto:corporaterelations@case.edu).

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## Research: Mace Security International and CWRU



When a corporation is looking to expand into new geographies, it requires gathering substantial knowledge of the region, its associated opportunities, and the potential business hurdles that will need to be overcome. Forging ahead without such information can prove costly. Frost and Sullivan indicates that for every successful

market entry, four attempts at expansion are unsuccessful. When Mace Security International considered pursuing such a venture, they engaged with members of the Weatherhead School of Management to assist them with their assessment of the viability of perceived overseas opportunities.

Mace Security International, located in Cleveland, is a diversified manufacturer and provider of personal defense and security products focusing on both the consumer and business market segments under the world-renowned Mace brand. Since 1970, Mace has been the original trusted brand for personal defense sprays, while continuously adding high quality security products to the brand line through the years. In addition to their line of sprays, Mace provides a host of branded safety solutions for heightened visibility in low light situations such as gear for night runs and illuminated leashes for exercising your pets. Alarm systems and other connected devices provide direct access to 911 in emergency situations.

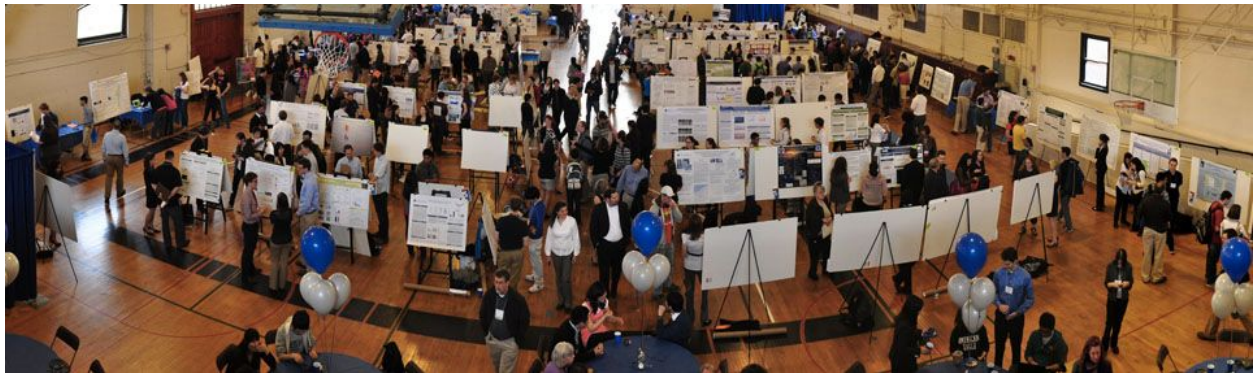
Working with Simon Peck, Associate Professor in the Department of Design and Innovation, Mace empowered two teams of international students to provide a market analysis of the personal security and self-defense industry within each of their respective home countries. Within the data, the MBA students provided insights that clarified the state of the existing market, the breadth of the competition, the relative shares owned by the incumbent manufacturers, distribution channels, as well as current price points and pricing considerations. In addition to the product related details, the students also offered insight into the laws and other legal implications germane to Mace's particular set of personal safety options. Even further, the students provided input into the cultural attitudes and social significance of the array Mace's offerings. Mace's executive team will utilize the data and insights generated by CWRU's MBA students to inform its going forward strategy.

If you or your company would like to benefit from Case Western Reserve University's expertise in market analysis, please contact

[corporaterelations@case.edu](mailto:corporaterelations@case.edu).

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## Human Capital: CWRU Undergraduate Experiential Learning



Case Western Reserve University is committed to providing its diverse undergraduate programs with a variety of research, internship, and employment opportunities on and off campus.

These opportunities are unique, as they provide a challenging environment that allows a student to take his or her education beyond the bounds of a classroom. Among the most popular is our Co-op program, which is a full-time, semester-long experience in a position relevant to the student's field of study. This helps accelerate and inspire intellectual, personal, and professional development through meaningful work that also allows industry partners to meet and train potential future hires and benefit from CWRU students' technical and creative contributions.

With an even larger graduate program and location among University Circle's hospitals and museums, CWRU also provides its undergraduates with an avenue to develop additional research and creative opportunities. SOURCE (Support of Undergraduate Research & Creative Endeavors) is our university's centralized office for undergraduate research, and assists students find new project opportunities as well as aiding faculty members with undergraduate research program development and funding. Students with identified projects and mentors are encouraged to apply for SOURCE summer funding, which provides eligible undergraduates with a stipend to participate in a summer project either on campus or with a partner organization.

Students with interest in specific fields can find a variety of opportunities on campus that can put them at the forefront of innovation. For example, the Great Lakes Energy Institute offers the ThinkEnergy Fellows program, an innovative, student-centric opportunity that focuses on translational and experiential learning about energy. With the goal to prepare future energy leaders to navigate the industry, the program connects

students with faculty, companies, financiers and local, national, and international communities around energy topics. Recent members of the program have outfitted a picnic table with solar panels and a battery pack to serve as an outdoor charging station. The table, powered by two 90-watt solar panels, helps students apply classroom fundamentals to the real world and brings energy literacy to campus.

If you are interested in learning more about experiential learning at Case Western University, please contact [corporaterelations@case.edu](mailto:corporaterelations@case.edu).

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### **Co-Branding: Fourth Global Forum**



From June 14, 2017 to June 16, 2017, the Fourth Global Forum conference will showcase extraordinary stories of radical business innovation and net positive impact from around the world, as part of a global learning challenge to build a better world. Here, over 400 participants work on their initiatives to advance existing priorities at the individual, organizational, and systemic levels. Executives, entrepreneurs, and other change agents, will discover, design, and strategize around their own high priority initiatives.

Participants will explore the concept of a flourishing enterprise, an organization which excels financially while simultaneously doing good in the world. Flourishing enterprises do not have to sacrifice mission for profit, or vice versa. Moreover, as they create well-being which leads to superior performance and increasing economic prosperity, such enterprises contribute to a healthy environment and improve human wellbeing. At the Global Forum, one can design and prototype practical initiatives using the whole system, strength-based, anticipatory learning of Appreciative Inquiry to move business agendas forward with momentum and organizational buy-in.

The program will develop pragmatic work plans to further transform your organization into a flourishing enterprise. The purpose is to emerge from this experience with

customized initiatives to improve your bottom-line results, inspire authenticity, creativity, and collaboration in your organization, and engage employees and partners in work that is meaningful and purpose-driven.

Global, national, and local CEOs are attending with corporate teams to address respective business opportunities through Appreciative Inquiry work sessions and exchange at the forum. Fowler Center Executive Director Chris Laszlo can often arrange to speak in person or by phone with companies participating in advance, to delve into what opportunities they wish to access/innovate at the forum and how to exit with an implementation model.

Companies interested in continuous improvement and growth can participate in the Global Forum through conference registration as well as sponsorship. Please contact [corporaterelations@case.edu](mailto:corporaterelations@case.edu) to discuss how your organization may best reap the benefits of this unique and powerful summit of positively minded innovators and executives.

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## **Philanthropy: National Youth Sports Program**



Launched in 1970, the National Youth Sports Program (NYSP) at Case Western Reserve University exemplifies the university's commitment to improving the quality of life for others in our local community. The program provides an enriching five-week

summer experience that offers sports activities, education, nutrition and health services to more than 500 economically disadvantaged Greater Cleveland youth, ages 10 to 16. Since its inception, Case's NYSP has served more than 15,500 local children.

The NYSP is a comprehensive experience that combines fitness, fun, and learning. The program is led by a team from our Nursing, Engineering, and Social Work Schools to help campers participate in sports and academics to promote self-respect and healthy living skills necessary for life-long success all within a collegiate environment that through familiarization encourages students to conceptualize a future that includes higher education. Once enrolled in the NYSP, youth have an opportunity to participate in a variety of sports, including badminton, volleyball, football, tennis, soccer, softball, golf, dance, kickball, track and field, basketball, and swimming. NYSP campers also participate in educational programming to enhance academic skills and social awareness. Sessions include personal health, nutrition, drug and alcohol prevention, disease prevention, personal hygiene, career opportunities, computer skills, math, and science. The math and science component provides exposure to environmental science as well as other math and science disciplines. It incorporates hands-on activities to cultivate positive attitudes toward math and science education and career opportunities.

In addition, nursing students completed 2400 hours of clinical service by doing health screenings of the participants. Among other readings, nursing students took systolic and diastolic blood pressure readings which indicated that 160+ campers had higher blood pressure than was good for long-term health. In 67 cases, campers were referred to physicians for closer care. Campers were fed healthy USDA approved lunches for free and discussions were held about the importance of healthy eating and exercise for long-term health and well-being.

The overall goals of the NYSP at Case Western Reserve University oftentimes align directly with those of a corporate foundation, namely through its endeavor to improve the educational opportunities of low and moderate-income students. The NYSP is an innovative program that not only promotes academic achievement to low-income and at-risk students, but also encourages post-secondary education through its location at a university, for many the first opportunity to experience a college campus.

If this program resonates with your corporate community or philanthropic goals, please contact [corporaterelations@case.edu](mailto:corporaterelations@case.edu).

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## Economic Development: CWRU Core Facilities



Driving forward technical innovation is often times a costly endeavor requiring specialized expertise and equipment. However, as fundamental knowledge is understood, milestones are achieved, and new phases of development plans are launched, the once necessary resources may become less relevant and evolve into a draw on corporate finances. CWRU has a more than 90 facilities across campus available to the corporate community, each staffed with highly skilled engineers, scientists, and faculty who are experts in the associated equipment and its fields of use. Rather than acquiring specialized equipment or hiring full time employees, the university's capabilities may be brought to bear to advance your organization's development plans in a fiscally conscientious manner, thereby advancing economic development.

Ranging from cell sorting to solar cell testing, from polymer compounding to high resolution electron microscopy, from atoms to zebrafish, these diverse resources address the varied needs of businesses by providing state-of-the-art equipment and instrumentation, service work, technical expertise, and training to support innovative, cutting edge research. Our cores and centers are organized into spaces by areas of technology.

For example, the Proteomics Core provides proteomic and mass spectrometry analytical service to the university and external customers. The core has collaborated with over 60 investigators across 20 different departments within the university this year. Equally impressive, the Core has provided mass spectrometry analytical services to a number of industry partners including: Merck, Janssen Pharmaceutical, Avery Dennison, EpiBone, Cleveland HeartLab, Arteriocyte Medical Systems, and Cancer Centers of America.

“Avery Dennison's medical products business, Vancive Medical Technologies, develops innovative adhesive technologies. One of our most exciting platforms is our BeneHold CHG antimicrobial adhesive technology, which is now being commercialized IV site cover dressings. Case Western Reserve is a tremendous asset for our R&D team because your analytical capabilities and expertise helps us to develop a deeper fundamental understanding of the materials we develop, accelerating product development and enhancing the quality of our work. We tremendously value our cooperation.”

-Neal Carty, Ph.D

Director, Research and Development & Medical and Scientific Affairs

As further example, the Swagelok Center for Surface Analysis of Materials (SCSAM) is a multi-user analytical facility that provides instrumentation for characterization of materials as well as surface and near-surface chemical analysis. Administered by the Case School of Engineering and maintained by six full-time Ph.D. level engineers, the center averages 70 corporate clients per year. In past instances, SCSAM has assisted a leading global producer of advanced specialty chemical additives to help identify the positive relationship between performance measurements and the presence of the company's additives. Researchers from the company have worked independently or, when needed, with SCSAM staff who provide guidance on methods and instrumentation techniques to obtain the most reliable data.

In a similar vein, the Electronics Design Center (EDC) is a world-renowned research center specializing in the development of microsensors and microsystems. Devices created, improved, and serviced at the EDC are at the forefront of technologies being used in medical, biological, chemical, environmental, and industrial applications. An Ohio based company has used the Electronics Design Center (EDC) for years in order to develop unique, high-vacuum-deposited coatings for their products. Though the company has coating technology available to them in-house, they are often unable to stop production long enough to do small R&D test runs. The EDC offers them the perfect opportunity to develop and test potentially ground-breaking prototypes. Recently, the Electronics Design Center has been instrumental in helping an Ohio-based startup company ICBM Medical Inc. secure an Ohio Third Frontier Technology Validation and Start-up Fund (TVSF) grant in 2016 for their biotechnology.



The EDC provided prototype biosensors for ICBM and performed preliminary electrochemical testing, as well.

For more information of the full breadth of facilities, please visit the Core Facilities website within CWRU's Research enterprise at <https://research.case.edu/corefacilities/index>.

Or contact corporaterelations@case.edu for assistance connecting your needs with our capabilities.