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Illuminating the wonder of engineering

National Engineers Week 2018 a great success

story and photos by Keith Pierce

The wonder of engineering was brought to life for current and future engineers, as well as for educators and parents, during last month's celebration of National Engineers Week! From welcoming hundreds of middle and high school students to campus, to showcasing student clubs, there was no shortage of activities highlighting the significant impact engineers make on society.

Activities included a door-decorating contest, fun and exciting games on the Kaufman lawn and a special screening of the movie, "Dream Big," an inspirational film about the impact of engineering and how a single dream has the power to change the world.

Engineering lab tours, a game night and an engineering gala aboard the Spirit of Norfolk, rounded out the robust week of activities.

A big thank you to all departments for opening up labs, hosting tour groups and providing support for several activities. Special thanks to assistant dean, Carol Considine, who led a team of dedicated student, faculty and staff volunteers who helped make this year's celebration one of the best ever!

Engineers Week was founded in 1951 by the Nation Society of Professional Engineers, (NSPE). The weeklong celebration is sponsored nationally by the American Society of Civil Engineers, (ASCE), and the DiscoverE Leadership Council; which includes Bechtel, Bentley Systems, ExxonMobil, Lockheed Martin, the National Council of Examiners for Engineering and Surveying (NCEES), the Northrop Grumman Foundation, Shell Oil and TE Connectivity.

Sara MacDonald, a Ph.D. candidate in Electrical and Computer Engineering at ODU, served as one of the role models at Thursday night's GirlEDay event at the University Theater. Sara has 17 years of experience designing terrestrial, airborne and satellite wireless communication systems for military use.

Undergraduate engineering student volunteers helped make Thursday night's GirlEDay event at the University Theater, a tremendous success. Back row, left to right: Shaniece Green, Cameron Watson, Abbie Dean, Brianna Barnhill and Tahteyana Wilson. Kneeling: Ashley McIntosh, Nyka Watkins and Mystique Owens

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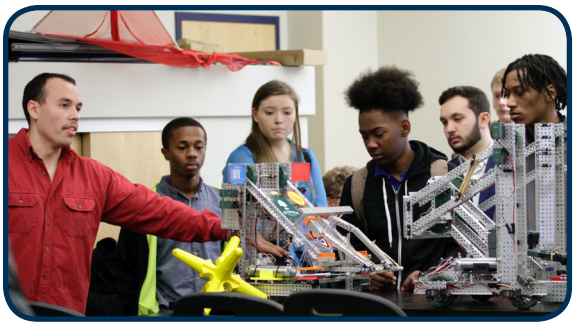
Engineers week cont.



ODU VEX robotics team member, Jackson Arzola, provides a demo to a small group of the nearly 100 high school students who toured engineering and technology labs during engineers week.

Engineering Management and Systems Engineering Ph.D. students, Wael Khallouli (left) and Sujatha Alla promote the ODU Chapter of the American Society for Quality (ASQ) during engineers week.

ODU Motorsports team members, Derek Wade, a mechanical engineering technology major, (in Baja car), and Brandon Whitfield, a mechanical and aerospace engineering major (right), take part in a Formula and Baja SAE car demonstrations during engineers week. ***Click on the image to see the video.***

And the door prize goes to...

Ben Stuart, Ph.D., senior associate dean of the Batten College of Engineering and Technology, issues "door prizes" for the first annual National Engineers Week door decorating contest. Above left: Caleb Holland (left) and Jennifer Broderick (center) accept the first place gold medal on behalf of Civil and Environmental Engineering. Above center: Dr. Stuart stands in front of the door to the dean's office suite, winner of the second place silver medal, decorated by student volunteers, with the help of office administrative specialist, Vivian Taylor. Above right: Modeling and simulation engineering student, Christine Odenwald, accepts the third place bronze prize on behalf of Modeling, Simulation and Visualization Engineering. Winners will retain their medals for one full year, when the 2019 contest will determine a new winner. Congrats to all!

See more in these great videos:

Students enjoy a friendly game of Jenga on the Kaufman lawn National Engineers Week.

ODU places among world's best in brain tumor imaging competition

by Keith Pierce

The MRI results are in and when it comes to evaluating brain tumors using magnetic resonance imaging (MRI) scans, students from Old Dominion University's Vision Lab are among the best in the world.

Among 17 teams from around the globe, ODU students placed first, ahead of University Hospital of Bern (Switzerland), University of Castile-La Mancha (Ciudad Real, Spain) and the University of Virginia, in the Survival Prediction Category of 2017 Multimodal Brain Tumor Segmentation (BraTS) Challenge, sponsored the University of Pennsylvania.

Held in Quebec City, Quebec last fall, the BraTS competition evaluated state-of-the-art methods for a process known as segmentation, the separation of brain tumor scans using computer vision in magnetic resonance imaging (MRI) followed by prediction of survivability for patients.

Advised by Khan Iftekharuddin, Ph.D., associate dean for research for the College of Engineering and Technology and director of the ODU Vision Lab, the ODU team consisted of Ph.D. students Zeina Shboul, Lasitha Vidyaratne and Mahbubul Alam.

"This is a huge accomplishment for us," said Iftekharuddin. "This win placed the lab members, the Vision Lab and the university in the spotlight on the global stage. The Vision lab placed in the 3rd and 4th in BraTS challenges in prior years as well."

In the competition, student researchers are provided a large volume of training data consisting of MRI images of the brain captured using different scanners from multiple institutions. The teams segment multiple abnormal tissues within the brain tumors from pre-operative MRI scans and predict patient survival. Three groups of survival are considered: long survivors (less than 15 months), short survivors (less than 10 months), and mid survivors (between 10 and 15 months). Key factors such as the type of tumor, the mode in which the tumor is scanned and the stage of the disease affect segmentation.

The students are required to evaluate their segmentation and survival prediction performance and submit a short paper describing the results, as well as the segmentation method used. Their work is then evaluated and ranked against other competitors.

In the end, the ODU team placed first in the survival task for their paper entitled: Glioblastoma and Survival Prediction.

"Glioblastoma (GB) is categorized as a World Health Organization (WHO) stage IV brain cancer. The heterogeneity in GB poses a challenge not just for diagnosis, but also for prognosis and survival prediction using MR imaging," Iftekharuddin explained. "Our team in the Vision Lab is developing novel computational modeling and machine learning methods for segmentation of the tumors and, more importantly, survival prediction for the patients affected by these lethal brain tumors. Such models will guide clinicians and practitioners in charting the course of action for these patients."

The BraTS challenge is organized as part of the Medical Image Computing and Computer-Assisted Intervention (MICCAI) conference, by the Section for Biomedical Image Analysis (SBIA), part of the Center for Biomedical Image Computing and Analytics (CBICA) in the Perelman School of Medicine at the University of Pennsylvania.

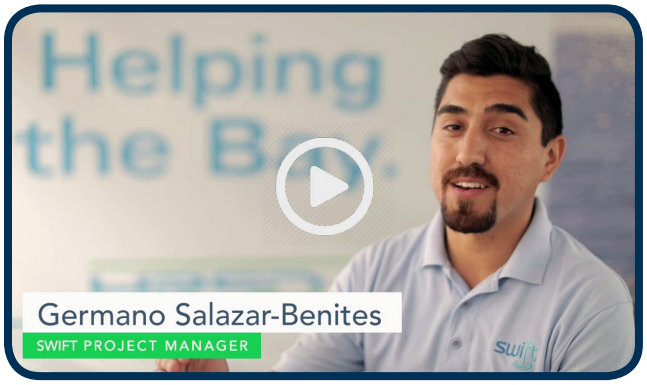
The challenge results may be found at http://www.med.upenn.edu/sbia/brats2017/rankings.html

Khan Iftekharuddin (foreground) and the Vision Lab team consisting of Lasitha Vidyaratne, Zeina Shboul and Mahbubul Alam

CEE alum receives national young professional of the year award

by Keith Pierce

Civil and environmental engineering alum, Germano Salazar-Benites received the 2017 WateReuse Young Professional of the Year award. Presented at the 2017 Annual Conference of the WateReuse Association held in Phoenix, Arizona, the award recognizes an individual that has made a significant contribution to water reuse and has successfully advanced the development of alternative water supplies or developed a novel approach to meeting local water needs. Salazar-Benites' efforts in managing the technical and operational aspects of the pilot-scale testing of the HRSD Sustainable Water Initiative for Tomorrow (SWIFT) project helped earn him the honor. The SWIFT project is being developed to protect the region's environment, enhance the sustainability of the region's long-term groundwater supply, and help address environmental pressures on Chesapeake Bay restoration, sea level rise and saltwater intrusion.



Germano Salazar-Benites

Salazar-Benites is a May 2017 CEE graduate with a Master of Science degree in environmental engineering. His master's research, which overlapped his efforts with the SWIFT project, focused on understanding the mechanism of cyanide inhibition of nitrification in wastewater treatment and the development of a cost-effective treatment option for cyanide removal.

Originally from Peru, Salazar-Benites joined HRSD in 2011 as a treatment plant operator after graduating in 2010 with a degree in chemical engineering from the Polytechnic University of Puerto Rico. While serving as an operator, his technical knowledge and problem-solving skills were recognized and he was challenged by HRSD management to address several complex treatment challenges including the cyanide inhibition. In 2013 he began his graduate studies in the CEE Department and the cyanide inhibition effort became the basis for his master's research.

Having proven his capabilities in research and managing the pilot study efforts, Salazar-Benites has been tapped to manage the $25M SWIFT Research Center scheduled to open later this year.

Give2ODU campaign offers chance to give directly to engineering and technology students

From energy to hunger; pollution to cancer; security to natural disaster, engineering holds the key to solving the world's greatest challenges. Great engineers are practical dreamers, methodical thinkers and imaginative problem-solvers with a vision of a better world. Our job as educators is to nurture the ideas and dreams of future engineers.

By providing engineering students with access to advanced resources, new technology and research-based learning innovations, we help them face and solve society's greatest challenges with confidence. The Batten College of Engineering and Technology is well-equipped to meet this challenge, but we need your help to continue building on the momentum we've created.

A gift to the Batten College of Engineering and Technology will help the college attract a talented and diverse student body; enhance the student experience through a purposeful and experiential-based curriculum; attract and retain the finest faculty; upgrade laboratory and teaching facilities; and provide seed funding for novel research initiatives. Your investment will not only ensure the level of excellence of our incoming students for years to come, but will also help provide an education for the next generation of Monarch engineers. Help us lead the charge on Tuesday, March 13th!

www.ODU.edu/eng

The ***illuminator*** is a publication of the Batten College of Engineering & Technology

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