

Dean's Remarks

As we emerge from the pandemic, life is slowly returning to normal, albeit with somewhat different emphases and orientations. One benefit of the pandemic was people's adaptation to technology. Even those who shied away from digital

print content and videoconferencing became comfortable with these forms of communication, and post-pandemic, these forms are here to stay. During the pandemic we published a digital version of TCoE Trends that was efficient to produce and easy to distribute. However, for some of you, digital content can never replace paper. There is something convenient and timeless about browsing a paper newspaper or

As a private university, with smaller-sized classes, the University of New Haven already prides itself on the dedication of its teachers to their students and the fact that they know their students by name and individual strengths. At no time has that teacher—student relationship been more important than now, as schools emerge from two years of remote learning in pandemic-world.

Computer Science students are reigniting their career dreams, and thanks to the new teaching chair, those dreams will be bigger and attract more faculty attention than ever before.

Meanwhile, civil engineering students — who inherently think big — are also having their career goals buttressed, thanks to the **Tagliatela Family Endowed Chair in Civil Engineering**.

The Tagliatela family has been supporting the TCoE, as well as its civil engineering programs, since 2005 — the same year they gave the College its name.

Over the past 17 years, the family has created countless opportunities for the College to expand and for students to develop into career-ready graduates who are in demand by local, U.S.-wide, and international companies.

Not content with simply funding a new Chair, the family also recently established the Tagliatela Family Scholarship in Civil Engineering, and the Tagliatela Family Civil Engineering Laboratory.

Altogether or separately, that's a lot for students to build on.

The Summer of '22: A Golden Opportunity for Research

Last summer, as members of the University's Summer Undergraduate Research Fellowship (SURF), two engineering students pursued what interests them most in their field.

Chemical engineering student **Madison Liguori '23** and her faculty mentor **Huan Gu, Ph.D.**, an assistant professor of chemical engineering, collaborated closely on "Skin Thinning Mediated Bacterial Penetration During Space Travel," giving Liguori priceless experience in hands-on research.



Assistant Professor Huan Gu, Ph.D., and Madison Liguori '23

The project studied the impact that space travel has on the skin of astronauts. "When astronauts embark on a space journey, they undergo different levels of gravity," Liguori explained. "This environmental change causes them severe skin-related issues. Staphylococcus aureus is one of the opportunistic bacteria that commonly reside on our skin and can cause persistent infections as it penetrates the skin's surface."

And ... we're back.

Capstone Design Expo Returns to In-Person Format



After two years of pandemic-imposed online presentations, seniors who dedicate two tough semesters to their Capstone projects were able to present their work face to face again and get the spontaneous audience feedback that means so much to them.

There were 34 projects in all, each a design solution that answered the need of a real or hypothetical customer. The outstanding

success of the event was demonstrated by how difficult it was for the judges to pick the top three.

The awards to the winners were sponsored by Reid Hanford, vice president of the Lee Company, who serves on the TCoE's Advisory Board.

First Place: Medtronic Buttress Attachment Method

The suture buttress is part of a Medtronic Tri-Staple device used in operating rooms to cut tissue and sew it back up. The device reduces the risk of infection and decreases the healing time of wounds.

Goal of the project: Redesign the current proprietary release mechanism of the buttress after firing, making it more cost effective and less complex.

The solution: A new design that replaced two separate stainless-steel pieces with one plastic “push” piece that is both easier to use and less expensive to manufacture. Nine of the newly designed devices are being readied for testing.

Team members: Mechanical Engineering students Demetrius Holliman, Devika Singh, and John Luffman

Faculty advisor: Dr. Ismail Orabi

Second Place: Smart Park — An Intelligent Parking System

Commuter students were stressed about where to find a parking place — which lot to try, the availability of spots, and the search for one often making them late for class. A further downside is that driving around looking for a spot produces three times the carbon emissions as normal driving.

Goal of the project: Develop a real-time, intelligent parking system for campus that can track available parking spaces accurately, monitor parking occupancy, even recognize drivers' behavioral patterns, and verify and validate license plates.

The solution: Take advantage of existing security cameras on campus to analyze the number of available spaces in a given lot. No extra hardware is needed, and so no additional cost is incurred for it. The information is sent to a Smart Park website, where users can view how many parking spaces are free at a particular location.

Team members: Computer Science and Cybersecurity & Networks students Benjamin Greenfield, Benjamin Placzek, and Steven Atilho

Faculty advisor: Dr. Mehdi Mekni

Third Place: Mix Avenue Streets and Traffic Light Design

Connecticut Department of Transportation data show that 50% of drivers traveling through intersections are driving over the speed limit, resulting in crashes with pedestrians and cyclists.

Goal of the project: Use traffic-calming measures and redesign traffic lights on Mix Avenue to create fluidity through the intersections. Use Synchro — 4D construction management software — to synchronize traffic lights and gain a fully automated sequence displaying a visual representation of the improvements to motorists, pedestrians, and cyclists.

The solution: A design proposal that included a pedestrian cross light, traffic phase offset sync, and a 360-degree traffic detector camera at the intersections, with sidewalks, crosswalks, and bicycle lanes on Mix Avenue, and center rumble strips, flush printed pavement media, and high-friction surface treatment in other high-risk areas.

Team members: Civil Engineering students Elissa Nuzzo, Robert Sweet, Jake Chamberlain, and Justin Stelmach

Faculty advisor: Mr. Joseph Balskus



Funding from the NASA Connecticut Space Grant

The students in Sun's research group will also be the fortunate beneficiaries of the \$55,000 grant as they work closely with him in the Advanced Polymer Lab that he founded. The title of the project – “Transformation of Non-Depolymerizable Poly (oxanorbornene)s to Depolymerizable



agencies for the GenCyber Agent Academy — the National Security Agency and the National Science Foundation — agreed wholeheartedly, and Mekni received the funds to create Connecticut's first GenCyber Teacher Academy. Geared toward teachers with STEM backgrounds, the weeklong program, whose inaugural session was in August of 2022, gives teachers all of the tools they need to incorporate cybersecurity education into their high school programs. Lesson plan designs, lectures, labs, equipment — even a free Chromebook — are all part of the package.

The teacher version of the Academy is every bit the enrollment effort that the GenCyber Agency Academy for students is. Teachers who were in the August session have subsequently called Mekni with invitations to speak to their classes. At Eli Whitney Technical High School in Hamden, Connecticut, Mekni identified the best students, made a strong pitch for the Tagliatela College of Engineering, and then invited the rest of the students to spend a day on campus, sit in on his classes, and live the experience of being part of the College.

Doing the math, Mekni figures that of the 25 teachers in the GenCyber Teacher Academy, if just five of them ask him to speak to their classes, he reaches about 120 students, potentially landing 20 or 30 of them for the College. But the number of students isn't the big thing in the end, he emphasizes. "I'm going for quality. I want only the best to dream of coming here."

One Fulbright Grant: 26 Days in Southeast Africa

Working a month-long stay abroad into a busy teaching schedule isn't easy, but landing a prestigious Fulbright grant has a way of dissolving obstacles. Toward the end of the Fall '22 semester and continuing into the winter intersession, Mekni consulted at the University of Mzuzu in Malawi as one of a select group of academics chosen by the Fulbright Specialist Program to conduct projects at institutions across the globe.

Mekni's project fell under the Program area of enhancing computer science and information technology education. In his role as ambassador for the University of New Haven, he reviewed and expanded on the University of Mzuzu's curricula in cybersecurity and networks.

He carried out his work at both the undergraduate and graduate levels, with a special focus on their proposed M.S. in Networks and Cybersecurity.

Ron Harichandran, dean of the Tagliatela College, sums up the outcome of the effort: "Mehdi is building a relationship between Mzuzu University and the University of New Haven that promises to serve as a bridge to strengthen future collaborations and allows students from Malawi to study at our University."

When they do come, there's a good chance that Mekni's Game Dess aimTJ 0.006 -1.38
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Alumni Dinner Hits Restart

After two years of missed dinners, graduates of the TCoE, beloved donors, and faculty were eager to return to the table in October for an Alumni Dinner that had been on pause due to the pandemic.

After the rush of pleasure at seeing one another in person again and catching up on any news that had been in storage, three major awards added even more sparkle to the conversation.

Ann Cox '83 received the Distinguished Lifetime Alumni Award. A project manager for Johns Hopkins Applied Physics Laboratory, and with degrees in civil and structural engineering and a P.E. license in mechanical engineering, Cox has spent more than 30 years working in the aerospace industry. She played a critical role in

missions to the moon and Mars as well as space shuttle missions and credits her professors at the University of New Haven for helping to launch her phenomenal career.

"The professors brought such varying backgrounds," she recalled. They were people who had their own companies on the side, had 30 years' experience building things, and could share what worked and what didn't."

When, at one point in her career, she was hired by Rockwell Industries — a major manufacturing conglomerate involved, at the time, in the aircraft and space industries — it was because of its interest in her structural and stress-analysis work, the kind of work she had performed at the University as a civil engineering major.

"Early on at Rockwell, the structural analysis classes and the modeling I had done at the University really helped," declared Cox. "Within three years, I got a lead engineer position. I was a civil engineer from the University of New Haven among MIT and Stanford grads."

The Outstanding Young Alumni Award, which honors alumni who have graduated within the past 10 years and are under 35 years of age, went to **Jordy Eduardo Padilla-Solis '15.**

A senior engineer for Thornton Tomasetti in New York City, his focus is bridge design and rehabilitation. Padilla-Solis developed a passion for bridges during an internship for a local construction company that

Tagliatela College of Engineering
300 Boston Post Road