

# COLLEGE OF ENGINEERING



ESPIRITUS  
NOVA®



1842

The Campaign for Villanova University



## From the Dean

As the Drosdick Endowed Dean of the College of Engineering, it is my honor and privilege to lead our Engineering community as we embark on ***Espiritus Nova: The Campaign for Villanova University.***

Over the past several years, the College of Engineering has experienced an exciting period of growth, unprecedented in our rich history. The opening of our new home, Drosdick Hall, has ushered in a new era for the College, uniting all Engineering disciplines under one roof to serve as a crossroads of innovation. With state-of-the-art instruction spaces, hands-on, interdisciplinary labs, and a 63% increase in research space, Drosdick Hall equips our engineers with the essential tools to develop the technical advancements of tomorrow.

The establishment of Drosdick Hall would not have been possible without the generous support of the entire Engineering community.

Through ***Espiritus Nova***, we can build on this foundation of success to take the College to even greater heights. With a \$125 million goal for the College, the campaign will enable us to pursue the priorities outlined in our ambitious 10-year Strategic Plan, a roadmap identifying our areas of strength and opportunities for growth in alignment with the University's Strategic Plan, *Rooted. Restless.* Key focus areas in the College's plan include:

- Undergraduate scholarships, to provide opportunities to hardworking, high-achieving students with need.
- The founding of a Center for Professional Development, to uniquely prepare students for the nontechnical components of their future careers.
- A named center and funding for the Sports and Performance Engineering initiative, which leverages technology to improve human performance.

***Espiritus Nova: The Campaign for Villanova University*** is an opportunity for each of us to invest in the future of engineering, ensuring that we continue to foster both groundbreaking research and a world-class engineering education for our students. I invite you to join us as we further our commitment to igniting change for the common good.

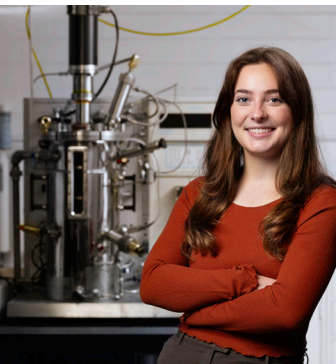
A stylized, handwritten signature in black ink, consisting of a series of loops and a long horizontal stroke.

**Michele Marcolongo, PhD, PE**

Drosdick Endowed Dean, College of Engineering

# Investing in Future Villanovans

As an Augustinian Catholic institution, Villanova is called to educate people regardless of their socioeconomic status. This is the bedrock on which the University was built more than 180 years ago. Today, that foundational commitment is also shaping our future. Endowed scholarships help remove the financial barriers keeping high-achieving students from Villanova, creating an academic community rich in talent, diverse in background and enhanced by a wealth of perspectives. Currently, Villanova does not meet 100% of demonstrated financial need for undergraduate students. Villanova's goal in this campaign is to narrow the need gap by raising \$300 million for endowed scholarships, with a specific goal of \$24 million for the College. Reaching this goal will make Villanova comparable to peer universities and will position the College to attract and enroll the most academically gifted students from across the socioeconomic spectrum.



## **Ciara Coulter '24 COE**

*Recipient of the James A. Drobile Dean's Scholarship in Chemical Engineering and the Maguire Foundation Endowed Scholarship*

Arriving on campus as a first-year student in the College of Engineering, Ciara Coulter aspired to do something big. She didn't know what that something would be, but she was sure that there was no better place than

Villanova to figure it out.

"I have always wanted to have a direct impact on people," says Coulter, who majored in Chemical Engineering. "Villanova Engineering teaches you how to do that. Here, you don't just learn to become an engineer, you learn to become an engineer who is articulate, thoughtful and kind."

In her time at Villanova, and with scholarship support, Coulter seized opportunities to grow in each of those directions. In addition to working in the immunology lab of Chemical Engineering Professor William J. Kelly, she was an English minor and a Special Olympics student leader.

Now, she has her sights set on a career at the cutting edge of health solutions in pharmaceutical development. For this Villanova Engineer, who graduated committed to making a difference and imbued with a deep sense of compassion, the sky's the limit.



**"My family stressed the power of education. I grew up believing I could use it to do something big."**

Ciara Coulter '24 COE



# Researching for the Common Good

Recognized leaders in their disciplines, Villanova Engineering faculty conduct groundbreaking research that garners prestigious grants as well as international and national recognition. At the same time, they are deeply committed teachers who continually design new courses and employ innovative learning strategies to educate and inspire our students. Our faculty embrace experiential learning opportunities inside and outside the classroom, engaging undergraduate and graduate students as true partners in the research and creative process. Endowed faculty positions have evolved into one of the most prestigious and permanent investments that can be made in any institution of higher education, enabling the College to recruit and retain, on a competitive basis, outstanding faculty who make significant contributions in teaching, research and scholarship.



## **Sylvie Lorente, PhD**

*William M. Brown '84, '87 Endowed Chair in Mechanical Engineering*

Associate Dean of Research and Innovation Sylvie Lorente, PhD, is a globally recognized thermal engineering expert and a true trailblazer in developing flow architectures for enhanced efficiency in heat, mass and fluid dynamics. Her innovative research is centered on revealing the engineered and biological hierarchical flow pathways that give complex systems their efficient properties and behaviors.

Dr. Lorente has authored seven books, 10 book chapters and over 200 peer-reviewed articles, ranking her in the top 2% of the most cited scientists

internationally. She was selected to join the esteemed Academia Europaea, whose membership has included more than 80 Nobel laureates. Additionally, in 2022, the European Commission assigned her to the governing body of the European Research Council.



## **C. Nataraj, PhD**

*Mr. and Mrs. Robert F. Moritz, Sr. Endowed Chair in Systems Engineering*

C. Nataraj, PhD, a professor of Mechanical Engineering, has been a member of the Villanova Engineering community since 1988. The director of the Villanova Center for Analytics of Dynamic Systems, an interdisciplinary research hub that bridges multiple fields, Dr. Nataraj has made significant advancements in mechanical engineering, notably securing a patent for NovaVent, an affordable ventilator, in collaboration with other professors from Villanova University.

A specialist in dynamics and control, Dr. Nataraj has provided mentorship to a wide range of students at Villanova, including 19 postdoctoral scholars, 21 PhD students, 43 master's students and 50 undergraduate students, showcasing his commitment to fostering talent across all levels of academia. Throughout his career, he has secured over \$14 million in funding, including a \$1 million grant in 2022 from the Office of Naval Research to develop and improve dynamic systems on US Navy ships.

# Key Campaign Initiatives

## Innovation and Impact

At Villanova's College of Engineering, faculty and students engage in innovative and impactful research addressing some of society's greatest challenges. As home to eight highly regarded Centers of Excellence, a dozen specialty research clusters and 20+ new state-of-the-art laboratory spaces in Drosdick Hall, the College is more prepared than ever to support cutting-edge research and innovation across disciplines. Support of faculty and student research enables the College to recruit the brightest young minds and world-renowned experts to identify and address the engineering needs of tomorrow, while building on specialized research in such areas as stormwater management, smart health and intelligent computing.



## Sports and Performance Engineering

To be a Villanova Engineer is to pursue solutions to help others. So how might we leverage technology to enable people to live their best lives? One new way the College of Engineering is addressing this question is through Sports and Performance Engineering. This forward-thinking initiative aims to use engineering principles to solve problems in sports and performance, creating new opportunities for teams and individuals, athletes and nonathletes alike. Whether it's through novel devices to augment brain health, or through seed grants partnering Villanova Engineering researchers with Villanova Athletics coaches and trainers, the goal is to enhance human performance—from the playing field to the classroom to the boardroom and beyond. As one of the College's newest initiatives, Sports and Performance Engineering will benefit from investments in a new Center for Sports and Performance Engineering, sponsored research and endowments in support of graduate fellowships.



## Center for Professional Development

In keeping with the University's strategic initiative to provide opportunities for professional development and lifelong learning, the College of Engineering seeks the resources to create an endowed center to support undergraduate and graduate students with career counseling, internship and fellowship placement, and professional development through its award-winning Career Compass program. The funds will be used to hire a director, expand professional development support for students and increase available resources for students to apply for fellowships.



# Campaign Giving Opportunities

## Naming Gifts for Centers and Directorships

The College's academic centers and centers of excellence, including Sports and Performance Engineering and Professional Development, support students, enrich scholarship, and foster interdisciplinary collaboration across Engineering's diverse fields and in partnership with scholars across the University.

- Name a Center of Excellence: \$5 million
- Name a new Center Directorship: \$2 million

## Faculty Support

Endowed support of our talented and dedicated faculty ensures the highest level of teaching and research for generations to come.

- Endow a Faculty Chair: \$2.5 million+
- Endow a Full Professorship: \$1.5 million
- Other endowed faculty positions: \$500,000 to \$1 million
- Name a faculty grant: \$125,000+

## Graduate Fellowships

Fellowships that provide PhD and master's students with tuition and research stipends enable the College to recruit the brightest minds to our graduate programs, including our newly launched Master of Science in Biomedical Engineering and our Sports and Performance Engineering initiative.

- Endow a Graduate Fellowship: \$1 million

## Student Support

You can support our outstanding Engineering students in a variety of ways—all of which will have a transformative impact on both their current studies and their future paths.

- Endowed scholarships for both undergraduate and graduate students start at \$100,000.
- Supporting summer research programs or funds for faculty-mentored research ranges from \$100,000 to endow a fund to \$1 million to name a summer program.
- Endowing an experiential learning opportunity like Formula SAE, Engineering Entrepreneurship or the Villanova Engineering Service Learning program ranges from \$1 million to \$2 million.

## Dean's Fund for Strategic Initiatives

Gifts of any size to this fund allow Dean Marcolongo to act quickly and strategically to pursue key opportunities and high-impact programs that benefit our students, faculty and staff and further the College's academic mission.

## About the Campaign

***Espiritus Nova: The Campaign for Villanova University*** reflects the strong, generous and unshakeable spirit that connects us all as Villanovans. With a goal of \$1.25 billion, it is the most ambitious fundraising effort in the University's history. Achieving this goal will strengthen our academic preeminence, enrich our campus and amplify our collective Augustinian Catholic impact—across the nation and around the world. Like St. Augustine himself, we have a restless drive to improve to become the very best version of ourselves, and when Villanovans put hearts and minds together, we are unstoppable. Your involvement in the *Espiritus Nova* campaign will continue Villanova's legacy as a transformative experience that embodies the strength of spirit, brilliance of mind and warmth of heart of St. Augustine.



**VILLANOVA**  
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