UNIVERSITY OF THE DISTRICT OF COLUMBIA
SCHOOL OF ENGINEERING AND APPLIED SCIENCES

SEAS Honors Award Ceremony, April 26, 2021

I am Devdas Shetty, Dean School of Engineering and Applied Sciences, and I am glad to share this virtual honor assembly this afternoon with you.

It is also my pleasure welcome students, families & friends as well as and faculty of SEAS to the video salute the honor awardees of SEAS, as well as 2021 graduates. Since last year, we got to know new ways of operating due to the virtual nature of our business. We commend you for your patience and resilience for the virtual remote experience throughout the Pandemic and we are proud of the UDC community's ability to respond with excellence.

For many of you, you are part of the class of 2021, the virtual graduating ceremony will be on May 8th and will be broadcast from Washington Convention Center. The graduation ceremony will be taking place with many luminaries, Keynote speakers and honorary doctorates celebrating you at the Convention Center and at that time, I will be honored to join them and salute you. This year's graduation ceremony will look a whole lot different than perhaps what you had pictured when you joined UDC. Even though there may not be pomp because of our circumstances, I have never observed a graduating class that has been called upon to step into the future with more purpose, and hope. While a lot has certainly changed during the period of stay at UDC, It is my hope hope that years from now, when we look back on this unprecedented time, we remember not the moments we lost in personal FTF interaction, but the way faculty/staff and students all rose up together to imagine a better delivery, in which we defined ourselves with resilience, and the spirit of community.

The COVID-19 crisis has taught us that it is not a localized experience but a crisis of global proportion. It has also pointed out to us the inherent ties between the people of the world. As Engineers and Computer scientists, our charge is to build, restore, create, and transform, to meet the demands of the society.

Talking about SEAS and its continued progress, - I want to thank SEAS Leadership of **Chairs/Program Directors**. Chairs: Klein, Behera, Esther, Wellman, Dr Cotae, PhD Directors **Program Directors**: Thompson (Biomed), Xu (Mech), Jeong (CS), Haghani (EE), Higgs (Civil). **Master's Program Directors** -Wagdy Mahmoud (ECE), Dr. Liang (Computer Science), Wang (Civil) and Dr. Tyagi (Mechanical). I also want to thank all faculty, staff members of SEAS for their dedication.

Talking about our programs, according to this specialized website, Engineering and Computer Science programs at UDC is considered most affordable in terms of affordability and quality in the region. We had a successful ABET- Reaccreditation visit in our traditional programs in engineering and computer science. When the final results come in 3 months, we would have an ABET accredited Biomedical Engineering program one of the very few Biomedical accredited

programs in the country. Biomedical Engineering program was commissioned 2017, we already graduated 8 students.

What is distinct about SEAS program is that we prepare students for a variety of career opportunities through a unique combination of hands-on experience, exposure of students to state-of-the-art technologies, and the possibility of UG research before you graduate. Several students have made use of this feature.

We started new academic programs in the following areas.

- Master's in civil engineering
- Master's in mechanical engineering
- PhD in Engineering and CS -
- Accelerated Masters

New Program Approved:

- ECE Department initiated a new program approved for introduction Computer Engineering in Fall 2021.
- CSIT Depart initiated a BS/MS program for Cyber Security going for Board approval. There is a national need in this area.

We spent nearly $1Million on Lab Upgrade past year. New Laboratory on Advanced Simulation and Modeling has been created in Building 42. Another new laboratory has been created for NASA experimental work and research.
We continue to make progress to achieve national recognition not only through our curriculum, student success, but also through faculty research and grants.

Research
There had been good amount of research funding from competitive grants from federal and government agencies. For example, more than $30 Million in 2020 alone. Sample Funding Organizations:

- National Science Foundation (NSF),
- National Aeronautics and Space Administration (NASA),
- Department of Energy (DoE)
- Department of Defense (DoD),
- Air Force Office of Sponsored Research (AFOSR), t
- National Institutes of Health (NIH),
- National Institute of Standards and Technology (NIST),
- Department on Aging and Community Living (DACL)
- National Security Agency (NSA)

National Research Centers:
These grants have helped us set up federally recognized and funded national centers.

a. (Center for Nanotechnology Research and Education (NSF CREST)
b. NASA Center for Advanced Manufacturing in Space Technology & Research at UDC (CAM-STAR)

c. DOE Consortium on Advanced Manufacturing Post processing
d. NIST Program
e. NIH- STAR Center for Assistive Rehabilitation
f. DC Department of Aging Program.

Other Recent Grants

- Dr Haghani and team Course Development for a 21st Century Smart Grid Workforce I
- Dr Xu and DR Haghani continue the implementation of the NASA Mars Human Exploration
- XU- DOD Airforce: Nano-enhanced Phase Change Material and Loop Heap Pipe Enabled Hybrid Thermal Management of Electromechanical Actuator
- DOD-ONR grant: "Understanding the Processing-Microstructure-Property of Additively Manufactured Parts, Modeling and Experimental Characterization."
- Two major grants on Risk Assessment in the Face of Flood Hazards in the District of Columbia
- Integrating Risk and Resilience into Undergraduate Engineering Education Towards a Hazard-Resilient Built Environment (NSF)
- USDA Development of a New and Optimal Geothermal System for Urban Agriculture Sustainability and Food Security in the District of Columbia
- Developing Predictive Models for Wind-Penetrated Power Systems Using Bayesian Approach with Dr. Amir Shahirinia
- Acquisition of Advanced Robotics and Autonomous Vehicle Technology (ARAVT) for Research in Smart Grid Systems,
- CS Thabet Kacem and Group: NSF program on Workforce Development for a New Generation of Cyber Security Systems
- DR Wagdy Mahmoud Work Force Development for the Next Generation and in Cyber Physical Systems
- With support from DOD Dr Nian Zhang is working on I Optimization, Clustering and Classification Photo-Thermal Infrared Imaging
- Multi-disciplinary team led by CE, involving CE ME EE are acquiring a top-of-the-line Dual Beam Scanning Electron Microscope.
- Computer Science professors Dr Oladunni is using artificial intelligence to understand why the nation's Black community is experiencing higher COVID deaths than other groups. New tools are developed to predict the scope of impact for discharged patients.
- CS team is also NSF grant Building Capacity in Cyber Security and Computer Engineering at UDC
- Dr Wellman and colleagues are leading NSA program to enhance capability Cyber Security.
- DR Max Denis has new partnership and funding from DOD on Ultrasonic Imaging.

I wanted to mention this because they are real grants in addition National Center grants.

Industry Interaction

Working with Oakridge National Lab and Kansas City Nuclear plant, Tyagi improving the surface quality of additive manufactured parts.
Working with defense company Y12 UDC team developed nano scale chemical sensor for radiation environment sensing.
With Advanced Cooling Technologies, PA we are developing efficient cooling systems for satellites.
The support from NIH has helped us address the goal of reducing fall-related injuries and death in the growing aging population. New Centers from NIH will have facilities nothing like in our neighborhood. Two Faculty patents filed for the first time through UDC Office of Sponsored Project.
Overall, the industry and govt partnership has helped grow our new PhD program.

These grants help the students in the following was::

1. They have the opportunity to conduct independent research with faculty as a part of their academic program and get financially supported.
2. There are several scholarships, internships, and job opportunities from which students can receive additional support.
3. They provide internships, summer opportunities- ability to work in National Labs (Example: Johnson Space (Houston); Oak Ridge National Lab, Albuquerque, Jet propulsion Pasadena, NASA Center -Goddard, MD, Naval Surface Warfare Card rock to name a few.

Students are winning competitions.

Our students participate in national competitions and win top awards (Ex: NASA Rover competition, AMIE Competitions, Steel Bridge Competitions, Student Paper contests). Civil Engineering (CE) group is very active this year. CE students won in the Concrete Solutions Conference, Water Resources Conference, Geotechnical Conference Essay contest. Computer Science students excelled in Cyber Security Hacking competition

More and More students are Passing EIT examinations. I want to thank Dr. Z for mentoring and encouraging Civil Engineering students. As an off shoot of NASA grant was the Engineering ambassador Program. Led by student leader Ms. Skarleth Vasquez, we were able to work with several DC High Schools and promote STEM programs.

Computer Science and Engineering graduates are securing jobs and internships in top companies like Intel Corporation, Boeing, Google, Boston Scientific, US Patent office, Lockheed Martin, NASA, Naval research, to name a few. Several recent graduates are pursuing graduate degrees in nation's top Universities with full scholarship. About 18% of our graduates pursue graduate degrees.

We now see that engineering and computer science have started flourishing in exciting new areas: nanotechnology, quantum computing, and molecular electronics, Biomed and nanomedicine, new materials devices areas like Climate change and alternative Energy. As you start working in Industry you will see the impact of Industry 4.0 which has many domains- cyber physical systems, cognitive computing, AI, Robotics, 3D printing, IOT, Big data analytics, fraud

detection, augmented reality, wearable devices, new construction materials, predictive maintenance.

As individuals can create more of their own content in digital form, and as search engines and computers get better at sifting and sorting all that digital content. This shows how you do whatever you do is going to matter more than ever.

Honor function such as this is a wonderful way for our school and community to recognize and celebrate the choices, and sometimes the sacrifices, you have made. But I believe that what should make you and your parents the proudest is not the actual honor itself, but what you had to do to get it.

On behalf of SEAS faculty and staff, I have no hesitation in saying we are most proud to have you represent us out in the world. As Engineering and Computer Science graduates, our charge is to build, restore, create, and transform, to meet the demands of the age. I am sure UDC graduates will be on the forefront, leading what can and must be done. And you are also becoming the newest ambassadors of the University of District of Columbia.
Congratulations Class of 2021

Devdas Shetty, Ph.D., P.E.
Dean,
School of Engineering and Applied Science
University of the District of Columbia
4200 Connecticut Ave. NW
Washington, DC 20008